

Solicitation DA14027

Corrections-Intercom & Paging System Remodel Draper Prison-13304100

Bid designation: Public

DFCM

Bid DA14027 **Corrections-Intercom & Paging System Remodel Draper Prison-** **13304100**

Bid Number **DA14027**
 Bid Title **Corrections-Intercom & Paging System Remodel Draper Prison-13304100**
 Expected Expenditure **\$207,000.00** (This price is expected - not guaranteed)

Bid Start Date **May 30, 2014 2:05:38 PM MDT**
 Bid End Date **Jun 26, 2014 2:30:00 PM MDT**
 Question & Answer End Date **Jun 18, 2014 4:00:00 PM MDT**

Bid Contact **Craig Wessman**
DFCM
801-673-2107
cwessman@utah.gov

Bid Contact **Denise Austin**
VBS Program Coordinator
DFCM
801-538-3708
daustin@utah.gov

Contract Duration **One Time Purchase**
 Contract Renewal **Not Applicable**
 Prices Good for **45 days**
 Pre-Bid Conference **Jun 10, 2014 8:30:00 AM MDT**
Attendance is mandatory
Location: Corrections Administration Building 14717 Minuteman Drive
Draper, Utah

Bid Comments Replacement of the existing intercom and paging systems in two separate buildings. The work includes modification to the existing control panels in the control rooms for the new switching and activation keys. The work includes removing the existing equipment, cabling, wires, speakers, and other equipment. The new equipment is to be installed as indicated on the drawings and specification which includes but is not limited to the following items: new amplifiers, speakers, switches, indicator lights, cabling and wiring, equipment housing boxes, and keyed control switches.

Item Response Form

Item **DA14027--01-01 - Base Bid**
 Quantity **1 lump sum**
 Unit Price
 Subcontractor's List Due 6/27/2014
 Liquidated Damages \$175 per day
 Completion Date 11/28/2014
 # of DFCM Addendums
 Business Organization Type
 Contractor's License #
 Delivery Location **DFCM**
DFCM

4110 State Office Bldg.
Salt Lake City UT 84114
Qty 1

Description

Replacement of the existing intercom and paging systems.



STATE OF UTAH - DEPARTMENT OF ADMINISTRATIVE SERVICES

Division of Facilities Construction and Management**DFCM**

**MULTI-STEP BIDDING PROCESS
FOR
CONTRACTORS**

**Request For Solicitation For
Construction Services**

**Stage II – Electrical Contractors Bidders List
FY2014**

May 30, 2014

**INTERCOM & PAGING SYSTEM REMODEL
DRAPER PRISON WASATCH & OQUIRRH
BUILDINGS**

**DEPARTMENT OF CORRECTIONS
DRAPER, UTAH**

DFCM Project No. 13304100

Envision Engineering
244 West 300 North, Ste. 100
Salt Lake City, Utah

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Technical Specifications:
 Drawings:

Current copies of the DFCM General Conditions dated May 25, 2005 and all Supplemental General Conditions are available upon request at the DFCM office and on the DFCM web site at www.dfcm.utah.gov - “Standard Documents” – “Reference Documents” – “Supplemental General Conditions”, and are hereby made part of these contract documents by reference.

The Agreement and General Conditions dated May 25, 2005 have been updated from versions that were formally adopted and in use prior to this date. The changes made to the General Conditions are identified in a document entitled Revisions to General Conditions that is available on DFCM’s web site at www.dfcm.utah.gov.

INVITATION TO BID

ONLY FIRMS PRE-QUALIFIED DURING STAGE I OF THE RFS ARE ALLOWED TO BID ON THIS PROJECT

The State of Utah - Division of Facilities Construction and Management (DFCM) is requesting bids for the construction of the following project:

INTERCOM & PAGING SYSTEM REMODEL
DRAPER PRISON WASATCH & OQUIRRH BUILDINGS
DEPARTMENT OF CORRECTIONS
DFCM PROJECT NO: 13304100

Project Description: Replacement of the intercom equipment in the security cell block areas in multiple locations. Includes modifying existing control panels in the control rooms, complete with new switches, speakers, and microphones. Also includes new intercom and paging amplifiers, speakers, cabling, and equipment boxes and removal of the existing speakers, cabling, and amplifiers. Construction Cost Estimate: \$207,000

FY2014 Prequalified Electrical Contractors

All-Tech Electric	Probst Electric
Custom Electrical Services	Schoonmaker Electro Mechanical
GSL Electric	Skyline Electric Company
Hidden Peak Electric	Taylor Electric
Patriot Construction LLC	TEC Electric

The bid documents will be available at 3:00 PM on Friday May 30, 2014 on the DFCM web page at <http://dfcm.utah.gov>. **See Project Description on page 4 for contact information.**

A **MANDATORY** pre-bid meeting and site visit will be held at **8:30 AM on Tuesday, June 10, 2014**, at the Dept. of Corrections Administration Building, 14717 Minuteman Drive, Draper, Utah (this building is located on the East side of I-15). **Prior to this meeting, the contractor's representative that will be attending this meeting must submit a "USP Background Check Form" no later than 4:00 PM on Wednesday, June 04, 2014.** All pre-qualified prime contractors wishing to bid on this project must attend this meeting starting in the Administration Building and then moving to the construction sites which are inside the prison security area. The "USP Background Check Form" is included as a part of the documents for this project. The individual must pass the background check to enter the sites inside the security area. Attendance at both the initial meeting in the Admin. Bldg. and the actual construction sites are required as part of the pre-bid meeting. Also included is the Utah Dept. of Corrections "Outside Contractor Rules and Regulations" which are a part of the requirements for this project to gain access to the project areas within the security areas. These rules apply both to the initial walk through and during construction.

Bids are to be submitted electronically through a secure mailbox at BidSync (www.bidsync.com) until **2:30 PM on Thursday, June 26, 2014**. It is the sole responsibility of the contractor to ensure their bid reaches BidSync before the closing date and time. There is no cost to the contractor to submit electronic bids via BidSync. Electronic bids may require the uploading of electronic attachments. The submission of attachments containing embedded documents (i.e., zip files, .mov, wmp, and mp3 files, etc.) is prohibited. All documents should be attached as separate files. Questions about using BidSync, please call customer service at 801-765-9245 option 1, option 1.

A bid bond in the amount of five percent (5%) of the bid amount, made payable to the Division of Facilities Construction and Management on DFCM's bid bond, shall accompany the bid submission and uploaded in BidSync. **If the bid bond is not furnished with the bid through bidsync, the BID is NONRESPONSIVE.**

The Division of Facilities Construction & Management reserves the right to reject any or all bids or to waive any formality or technicality in any bid in the interest of the State.

DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT
 Capitol Hill Complex
 4110 State Office Building
 Salt Lake City, Utah 84114

PROJECT DESCRIPTION

Contact Information:

Project Specific Questions: All questions are to be submitted in writing through BidSync (www.bidsync.com). Refer to Project Schedule for deadline.

Bidsync Technical/Bidding Questions: Bidsync Customer Service 801-765-9245 Option 1, Option 1 or www.bidsync.com.

DFCM Project Manager: Craig Wessman Phone: 801 673-2107

Project Description: Replacement of the existing intercom and paging systems in two separate buildings. The work includes modification to the existing control panels in the control rooms for the new switching and activation keys. The work includes removing the existing equipment, cabling, wires, speakers, and other equipment. The new equipment is to be installed as indicated on the drawings and specification which includes but is not limited to the following items: new amplifiers, speakers, switches, indicator lights, cabling and wiring, equipment housing boxes, and keyed control switches.

Schedule: Work in these areas must be scheduled in advance (14 days) since security must be maintained. The actual work should be completed in the least amount of time possible especially work on the control panels. The panels should come pre-assembled if possible to minimize the time needed to connect into the system. Only one control room shall be down at any given time while the switching of the panels is completed and the equipment is installed. Also only one control room shall be disrupted at a time for the other associated work required by this contract. Multiple crews working in different buildings or control rooms is not allowed due to the need to schedule a guard with each crew, unless prior approval is given by the Dept. of Corrections. The contractor should not plan on having multiple guards available.

Base Bid: Replacement of the existing intercom and paging systems.

Additive Alternates: None

Liquidated Damages: \$175 per day.

STAGE II - MULTI-STEP BIDDING PROCESS

ONLY FIRMS PRE-QUALIFIED DURING STAGE I OF THE RFS ARE ALLOWED TO BID ON THIS PROJECT

1. Invitational Bid Procedures

Each pre-qualified firm will be notified via e-mail from Bidsync when a project is ready for Construction Services to invite them to bid on the project.

2. Drawings and Specifications and Interpretations

Drawings, specifications and other contract documents may be obtained as stated in the Invitation to Bid. If any firm is in doubt as to the meaning or interpretation of any part of the drawings, specifications, scope of work or contract documents, they shall submit a request for interpretation through Bidsync's web site at www.bidsync.com by the question deadline identified in the schedule. Answers to questions and interpretations will be made via addenda issued by DFCM. Neither DFCM or the designer shall be responsible for incorrect information obtained by contractors from sources other than the official drawings/specifications and addenda issued by DFCM.

3. Product Approvals

Where reference is made to one or more proprietary products in the contract documents, but restrictive descriptive materials of one or more manufacturer(s) is referred to in the contract documents, the products of other manufacturers will be accepted, provided they equal or exceed the standards set forth in the drawings and specifications and are compatible with the intent and purpose of the design, subject to the written approval of the Designer. Such written approval must occur prior to the deadline established for the last scheduled addendum to be issued. The Designer's written approval will be included as part of the addendum issued by DFCM. If the descriptive material is not restrictive, the products of other manufacturers specified will be accepted without prior approval provided they are compatible with the intent and purpose of the design as determined by the Designer.

4. Mandatory PreBid Site Meeting

If a firm fails to attend a pre-bid site meeting labeled "Mandatory" they will not be allowed to bid on the project. At the mandatory meeting, contractors may have an opportunity to inspect the site, receive additional instructions and ask questions about the project. The schedule contains information on the date, time, and place of the mandatory pre-bid site meeting.

5. Addenda

All clarifications from DFCM will be in writing and issued as an addendum to the RFS. Addenda will be posted on Bidsync's web site at www.bidsync.com. Contractors are responsible for obtaining information contained in each addendum from the web site. Addenda issued prior to the submittal deadline shall become part of the bidding process and must be acknowledged when the bid is submitted electronically through www.bidsync.com. Failure to acknowledge addenda shall result in disqualification from bidding. DFCM shall not be responsible for incorrect information obtained by contractors from sources other than official addenda issued by DFCM.

6. Financial Responsibility of Contractors, Subcontractors and Sub-subcontractors

Contractors shall respond promptly to any inquiry in writing by DFCM to any concern of financial responsibility of the Contractor, Subcontractor or Sub-subcontractor. Failure to respond may result in suspension from DFCM's list of pre-qualified contractors.

Multi-Step Bidding Process Stage II
Page No. 2

7. Licensure

The Contractor shall comply with and require all of its Subcontractors to comply with the license laws as required by the State of Utah.

8. Permits

In concurrence with the requirements for permitting in the general conditions, it is the responsibility of the contractor to obtain the fugitive dust plan requirements from the Utah Division of Air Quality and the SWPPP requirements from the Utah Department of Environmental Quality and submit the completed forms and pay any permit fee that may be required for this specific project. Failure to obtain the required permit may result in work stoppage and/or fines from the regulating authority that will be the sole responsibility of the contractor. Any delay to the project as a result of any such failure to obtain the permit or noncompliance with the permit shall not be eligible for any extension in the Contract Time.

9. Time is of the Essence

Time is of the essence in regard to all the requirements of the contract documents.

10. Bids

Before submitting a bid, each bidder shall carefully examine the contract documents; shall visit the site of the work; shall fully inform themselves as to all existing conditions and limitations; and shall include in the bid the cost of all items required by the contract documents including those added via addenda. If the bidder observes that portions of the contract documents are at variance with applicable laws, building codes, rules, regulations or contain obvious erroneous or uncoordinated information, the bidder shall promptly notify the DFCM Project Manager. Changes necessary to correct these issues will be made via addenda issued by DFCM.

Bids are to be submitted electronically through a secure mailbox BidSync (www.bidsync.com) until the date and time on the Project Schedule. It is the sole responsibility of the contractor to ensure their bid reaches BidSync before the closing date and time. There is no cost to the contractor to submit electronic bids via BidSync. Electronic bids may require the uploading of electronic attachments. The submission of attachments containing embedded documents (i.e., zip files, .mov, wmp, and mp3 files, etc.) is prohibited. All documents should be attached as separate files.

A bid bond properly signed by a qualified surety, as indicated on the DFCM Bid Bond form provided along with this Instruction to Bidders, in the amount of 5% of the bid, shall accompany the bid submission and uploaded in BidSync. **If the bid bond is not furnished with the bid through Bidsync, the BID is NONRESPONSIVE.** THIS BID BOND MUST BE ON THE DFCM BID BOND FORM PROVIDED WITH THIS INSTRUCTION TO BIDDERS IN ORDER TO BE CONSIDERED AN ACCEPTABLE BID unless only one bid is received by DFCM, or the failure to comply with the bid bond requirements is determined by the Director of DFCM to be nonsubstantial based on the following:

- A. the bid bond is submitted on a form other than DFCM's required Bid Bond form and the bid bond meets all other requirements including being issued by a surety firm authorized to do business in the State of Utah and be listed in the U.S. Department of the Treasury Circular 570, Companies Holding Certificates of Authority as Acceptable Securities on Federal Bonds and as Acceptable Reinsuring Companies for an amount not less than the amount of the bond to be issued. A co-surety may be utilized to satisfy this requirement; and

Multi-Step Bidding Process Stage II
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- B. the contractor provides a bid bond properly signed by a qualified surety and on the required DFCM Bid Bond form by the close of business of the next succeeding business day after the DFCM notifies the bidder of the defective bid bond.

A CASHIER'S CHECK CANNOT BE USED AS A SUBSTITUTE FOR A BID BOND.

11. Listing of Subcontractors

Listing of Subcontractors shall be as summarized in the "Instructions and Subcontractor's List Form", included as part of the contract documents. The subcontractors list shall be delivered to DFCM or e-mailed to marlaworkman@utah.gov within 24 hours of the bid opening. Requirements for listing additional subcontractors will be listed in the contract documents.

DFCM retains the right to audit or take other steps necessary to confirm compliance with requirements for the listing and changing of subcontractors. Any contractor who is found to not be in compliance with these requirements may be suspended from DFCM's list of pre-qualified contractors.

12. Contract and Bond

The Contractor's Agreement will be in the form provided in this document. The duration of the contract shall be for the time indicated by the project completion deadline shown on the schedule. The successful bidder, simultaneously with the execution of the Contractor's Agreement, will be required to furnish a performance bond and a payment bond, both bearing original signatures, upon the forms provided in the procurement documents.

The performance and payment bonds shall be for an amount equal to one hundred percent (100%) of the Contract Sum and secured from a company that meets the requirements specified in the requisite forms. Any bonding requirements for Subcontractors will be specified in the Supplementary General Conditions.

13. Award of Contract

The Contract will be awarded as soon as possible to the lowest, responsive and responsible bidder, based on the lowest combination of base bid and acceptable prioritized alternates, provided the bid is reasonable, is in the interests of DFCM to accept and after applying the Utah Preference Laws in U.C.A. Title 63, Chapter 56. DFCM reserves the right to waive any technicalities or formalities in any bid or in the bidding. Alternates will be accepted on a prioritized basis with Alternate 1 being highest priority, Alternate 2 having second priority, etc. Alternates will be selected in prioritized order up to the construction cost estimate.

14. Right to Reject Bids

DFCM reserves the right to reject any or all Bids.

15. Withdrawal of Bids

Bids may be withdrawn on written request received from bidders within 24 hours after the bid opening if the contractor has made an error in preparing the bid.

Multi-Step Bidding Process Stage II
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16. DFCM Contractor Performance Rating and Pre-Qualification Status

As a contractor completes each project, DFCM will evaluate project performance based on the enclosed “DFCM Contractor Performance Rating” form. The ratings issued on this project may affect the firm’s “pre-qualified” status and their ability to obtain future work with DFCM. Contractors shall remain on DFCM’s list of pre-qualified contractors provided: (a) they maintain an average performance rating of 4.0 or greater on the last five DFCM projects, (b) they are not suspended for failure to comply with requirements of their contract, (c) the firm has not undergone a significant reorganization involving the loss of key personnel (site superintendents, project managers, owners, etc.) to a degree such that the firm no longer meets the pre-qualification requirements outlined in Stage I, (d) the financial viability of the firm has not significantly changed, and (e) the firm is not otherwise disqualified by DFCM. Note: If a contractor fails to comply with items (a) through (e) above, they may be removed from DFCM’s list of pre-qualified contractors. Pre-qualified contractors are ONLY authorized to bid on projects within the discipline that they were originally pre-qualified under.

	STATE OF UTAH - DEPARTMENT OF ADMINISTRATIVE SERVICES Division of Facilities Construction and Management	DFCM
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Stage II - PROJECT SCHEDULE

BIDSYNC BID # DA14027

PROJECT NAME:		INTERCOM & PAGING SYSTEM REMODEL DRAPER PRISON WASATCH & OQUIRRH BUILDINGS DEPARTMENT OF CORRECTIONS-DRAPER, UTAH		
DFCM PROJECT NO:		13304100		
Event	Day	Date	Time	Place
Stage II Bidding Documents Available	Friday	May 30, 2014	3:00 PM	DFCM web site *
Background Check Form Submitted to Shawn Anderson at the Dept. of Corrections	Wednesday	June 4, 2014	4:00 PM	Fax the USP Background Check Form to: 801 545-5702 Attn. Shawn Anderson
Mandatory Pre-bid Site Meeting	Tuesday	June 10, 2014	8:30 AM	Corrections Administration Building 14717 Minuteman Drive Draper, Utah
Deadline for Submitting Questions	Wednesday	June 18, 2014	4:00 PM	BidSync Web site**
Addendum Deadline (exception for bid delays)	Tuesday	June 24, 2014	5:00 PM	BidSync Web site**
Prime Contractors Turn in Bid and Bid Bond	Thursday	June 26, 2014	2:30 PM	BidSync Web site**
Subcontractors List Due	Friday	June 27, 2014	2:30 PM	E-mail: dfcmcontracts@utah.gov
Substantial Completion Date	Friday	November 28, 2014		

NOTE: * DFCM's web site address is www.dfc.utah.gov.
 ** BidSync web site address is www.bidsync.com.

BID BOND

(Title 63, Chapter 56, U. C. A. 1953, as Amended)

KNOW ALL PERSONS BY THESE PRESENTS:

That _____ hereinafter referred to as the "Principal," and _____, a corporation organized and existing under the laws of the State of _____, with its principal office in the City of _____ and authorized to transact business in this State and U. S. Department of the Treasury Listed, (Circular 570, Companies Holding Certificates of Authority as Acceptable Securities on Federal Bonds and as Acceptable Reinsuring Companies); hereinafter referred to as the "Surety," are held and firmly bound unto the STATE OF UTAH, hereinafter referred to as the "Obligee," in the amount of \$ _____ (5% of the accompanying bid), being the sum of this Bond to which payment the Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH that whereas the Principal has submitted to Obligee the accompanying bid incorporated by reference herein, dated as shown, to enter into a contract in writing for the _____ Project.

NOW, THEREFORE, THE CONDITION OF THE ABOVE OBLIGATION IS SUCH, that if the said principal does not execute a contract and give bond to be approved by the Obligee for the faithful performance thereof within ten (10) days after being notified in writing of such contract to the principal, then the sum of the amount stated above will be forfeited to the State of Utah as liquidated damages and not as a penalty; if the said principal shall execute a contract and give bond to be approved by the Obligee for the faithful performance thereof within ten (10) days after being notified in writing of such contract to the Principal, then this obligation shall be null and void. It is expressly understood and agreed that the liability of the Surety for any and all defaults of the Principal hereunder shall be the full penal sum of this Bond. The Surety, for value received, hereby stipulates and agrees that obligations of the Surety under this Bond shall be for a term of sixty (60) days from actual date of the bid opening.

PROVIDED, HOWEVER, that this Bond is executed pursuant to provisions of Title 63, Chapter 56, Utah Code Annotated, 1953, as amended, and all liabilities on this Bond shall be determined in accordance with said provisions to same extent as if it were copied at length herein.

IN WITNESS WHEREOF, the above bounden parties have executed this instrument under their several seals on the date indicated below, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

DATED this _____ day of _____, 20____.

Principal's name and address (if other than a corporation):

Principal's name and address (if a corporation):

By: _____

By: _____

Title: _____

Title: _____
(Affix Corporate Seal)

Surety's name and address:

STATE OF _____)
) ss.
COUNTY OF _____)

By: _____
Attorney-in-Fact (Affix Corporate Seal)

On this ____ day of _____, 20____, personally appeared before me _____, whose identity is personally known to me or proved to me on the basis of satisfactory evidence, and who, being by me duly sworn, did say that he/she is the Attorney-in-fact of the above-named Surety Company, and that he/she is duly authorized to execute the same and has complied in all respects with the laws of Utah in reference to becoming sole surety upon bonds, undertakings and obligations, and that he/she acknowledged to me that as Attorney-in-fact executed the same.

Subscribed and sworn to before me this _____ day of _____, 20____.
My Commission Expires: _____
Resides at: _____

Agency: _____
Agent: _____
Address: _____
Phone: _____

NOTARY PUBLIC

Approved As To Form: May 25, 2005
By Alan S. Bachman, Asst Attorney General



STATE OF UTAH - DEPARTMENT OF ADMINISTRATIVE SERVICES

DFCM**Division of Facilities Construction and Management****INSTRUCTION AND SUBCONTRACTORS LIST FORM**

The three low bidders, as well as all other bidders that desire to be considered, are required by law to submit to DFCM within 24 hours of bid opening a list of **ALL** first-tier subcontractors, including the subcontractor's name, bid amount and other information required by Building Board Rule and as stated in these Contract Documents, based on the following:

DOLLAR AMOUNTS FOR LISTING

PROJECTS UNDER \$500,000: ALL FIRST-TIER SUBS \$20,000 OR OVER MUST BE LISTED
PROJECTS \$500,000 OR MORE: ALL FIRST-TIER SUBS \$35,000 OR OVER MUST BE LISTED

- Any additional subcontractors identified in the bid documents shall also be listed.
- The DFCM Director may not consider any bid submitted by a bidder if the bidder fails to submit a subcontractor list meeting the requirements of State law.
- List subcontractors for base bid as well as the impact on the list that the selection of any alternate may have.
- Bidder may not list more than one subcontractor to perform the same work.
- If there are no subcontractors for the job that are required to be reported by State law (either because there are no subcontractors that will be used on the project or because there are no first-tier subcontractors over the dollar amounts referred to above), then you do not need to submit a sublist. If you do not submit a sublist, it will be deemed to be a representation by you that there are no subcontractors on the job that are required to be reported under State law. At any time, DFCM reserves the right to inquire, for security purposes, as to the identification of the subcontractors at any tier that will be on the worksite.

LICENSURE:

The subcontractor's name, the type of work, the subcontractor's bid amount, and the subcontractor's license number as issued by DOPL, if such license is required under Utah Law, shall be listed. Bidder shall certify that all subcontractors, required to be licensed, are licensed as required by State law. A subcontractor includes a trade contractor or specialty contractor and does not include suppliers who provide only materials, equipment, or supplies to a contractor or subcontractor.

'SPECIAL EXCEPTION':

A bidder may list 'Special Exception' in place of a subcontractor when the bidder intends to obtain a subcontractor to perform the work at a later date because the bidder was unable to obtain a qualified or reasonable bid under the provisions of U.C.A. Section 63A-5-208(4). The bidder shall insert the term 'Special Exception' for that category of work, and shall provide documentation with the subcontractor list describing the bidder's efforts to obtain a bid of a qualified subcontractor at a reasonable cost and why the bidder was unable to obtain a qualified subcontractor bid. The Director must find that the bidder complied in good faith with State law requirements for any 'Special Exception' designation, in order for the bid to be considered. If awarded the contract, the Director shall supervise the bidder's efforts to obtain a qualified subcontractor bid. The amount of the awarded contract may not be adjusted to reflect the actual amount of the subcontractor's bid. Any listing of 'Special Exception' on the sublist form shall also include amount allocated for that work.

GROUND FOR DISQUALIFICATION:

The Director may not consider any bid submitted by a bidder if the bidder fails to submit a subcontractor list meeting the requirements of State law. Director may withhold awarding the contract to a particular bidder if one or more of the proposed subcontractors are considered by the Director to be unqualified to do the Work or for such

INSTRUCTIONS AND SUBCONTRACTORS LIST FORM

Page No. 2

other reason in the best interest of the State of Utah. Notwithstanding any other provision in these instructions, if there is a good faith error on the sublist form, at the sole discretion of the Director, the Director may provide notice to the contractor and the contractor shall have 24 hours to submit the correction to the Director. If such correction is submitted timely, then the sublist requirements shall be considered met.

CHANGES OF SUBCONTRACTORS SPECIFICALLY IDENTIFIED ON SUBLIST FORM:

Subsequent to twenty-four hours after the bid opening, the contractor may change its listed subcontractors only after receiving written permission from the Director based on complying with all of the following criteria.

- (1) The contractor has established in writing that the change is in the best interest of the State and that the contractor establishes an appropriate reason for the change, which may include, but not is not limited to, the following reasons: the original subcontractor has failed to perform, or is not qualified or capable of performing, and/or the subcontractor has requested in writing to be released.
- (2) The circumstances related to the request for the change do not indicate any bad faith in the original listing of the subcontractors.
- (3) Any requirement set forth by the Director to ensure that the process used to select a new subcontractor does not give rise to bid shopping.
- (4) Any increase in the cost of the subject subcontractor work is borne by the contractor.
- (5) Any decrease in the cost of the subject subcontractor work shall result in a deductive change order being issued for the contract for such decreased amount.
- (6) The Director will give substantial weight to whether the subcontractor has consented in writing to being removed unless the Contractor establishes that the subcontractor is not qualified for the work.

EXAMPLE:

Example of a list where there are only four subcontractors:

TYPE OF WORK	SUBCONTRACTOR, "SELF" OR "SPECIAL EXCEPTION"	SUBCONTRACTOR BID AMOUNT	CONTRACTOR LICENSE #
ELECTRICAL	ABCD Electric Inc.	\$350,000.00	123456789000
LANDSCAPING	"Self" *	\$300,000.00	123456789000
CONCRETE (ALTERNATE #1)	XYZ Concrete Inc	\$298,000.00	987654321000
MECHANICAL	"Special Exception" (attach documentation)	Fixed at: \$350,000.00	(TO BE PROVIDED AFTER OBTAINING SUBCONTRACTOR)

* Bidders may list "self", but it is not required.

**PURSUANT TO STATE LAW - SUBCONTRACTOR BID AMOUNTS CONTAINED IN THIS
SUBCONTRACTOR LIST SHALL NOT BE DISCLOSED UNTIL THE CONTRACT HAS BEEN AWARDED.**

	STATE OF UTAH - DEPARTMENT OF ADMINISTRATIVE SERVICES Division of Facilities Construction and Management	DFCM
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SUBCONTRACTORS LIST

dfcmcontracts@utah.gov

PROJECT TITLE: _____

Caution: You must read and comply fully with instructions.

TYPE OF WORK	SUBCONTRACTOR, "SELF" OR "SPECIAL EXCEPTION"	SUBCONTRACTOR BID AMOUNT	CONT. LICENSE #

We certify that:

1. This list includes all subcontractors as required by the instructions, including those related to the base bid as well as any alternates.
2. We have listed "Self" or "Special Exception" in accordance with the instructions.
3. All subcontractors are appropriately licensed as required by State law.

FIRM: _____

DATE: _____

SIGNED BY: _____

NOTICE: FAILURE TO SUBMIT THIS FORM, PROPERLY COMPLETED AND SIGNED, AS REQUIRED IN THESE CONTRACT DOCUMENTS, SHALL BE GROUNDS FOR OWNER'S REFUSAL TO ENTER INTO A WRITTEN CONTRACT WITH BIDDER. ACTION MAY BE TAKEN AGAINST BIDDERS BID BOND AS DEEMED APPROPRIATE BY OWNER. ATTACH A SECOND PAGE IF NECESSARY.

DFCM Project No. _____
 DFCM Contract No. _____

CONTRACTOR'S AGREEMENT

FOR:

THIS CONTRACTOR'S AGREEMENT, made and entered into this ____ day of _____, 20__, by and between the DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT, hereinafter referred to as "DFCM", and _____, incorporated in the State of _____ and authorized to do business in the State of Utah, hereinafter referred to as "Contractor", whose address is _____.

WITNESSETH: WHEREAS, DFCM intends to have Work performed at _____.

WHEREAS, Contractor agrees to perform the Work for the sum stated herein.

NOW, THEREFORE, DFCM and Contractor for the consideration provided in this Contractor's Agreement, agree as follows:

ARTICLE 1. SCOPE OF WORK. The Work to be performed shall be in accordance with the Contract Documents prepared by _____ and entitled "_____"

The DFCM General Conditions ("General Conditions") dated May 25, 2005 and all Supplemental General Conditions ("also referred to as General Conditions") on file at the office of DFCM and available on the DFCM website (<http://dfcm.utah.gov/StdDocs/index.html>), are hereby incorporated by reference as part of this Agreement and are included in the specifications for this Project. All terms used in this Contractor's Agreement shall be as defined in the Contract Documents, and in particular, the General Conditions.

The Contractor Agrees to furnish labor, materials and equipment to complete the Work as required in the Contract Documents which are hereby incorporated by reference. It is understood and agreed by the parties hereto that all Work shall be performed as required in the Contract Documents and shall be subject to inspection and approval of DFCM or its authorized representative. The relationship of the Contractor to the DFCM hereunder is that of an independent Contractor.

ARTICLE 2. CONTRACT SUM. The DFCM agrees to pay and the Contractor agrees to accept in full performance of this Contractor's Agreement, the sum of _____ DOLLARS AND NO CENTS (\$_____.00), which

CONTRACTOR'S AGREEMENT
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is the base bid, and which sum also includes the cost of a 100% Performance Bond and a 100% Payment Bond as well as all insurance requirements of the Contractor. Said bonds have already been posted by the Contractor pursuant to State law. The required proof of insurance certificates have been delivered to DFCM in accordance with the General Conditions before the execution of this Contractor's Agreement.

ARTICLE 3. TIME OF COMPLETION AND DELAY REMEDY. The Work shall be Substantially Complete by _____. Contractor agrees to pay liquidated damages in the amount of \$_____ per day for each day after expiration of the Contract Time until the Contractor achieves Substantial Completion in accordance with the Contract Documents, if Contractor's delay makes the damages applicable. The provision for liquidated damages is: (a) to compensate the DFCM for delay only; (b) is provided for herein because actual damages can not be readily ascertained at the time of execution of this Contractor's Agreement; (c) is not a penalty; and (d) shall not prevent the DFCM from maintaining Claims for other non-delay damages, such as costs to complete or remedy defective Work.

No action shall be maintained by the Contractor, including its or Subcontractor or suppliers at any tier, against the DFCM or State of Utah for damages or other claims due to losses attributable to hindrances or delays from any cause whatsoever, including acts and omissions of the DFCM or its officers, employees or agents, except as expressly provided in the General Conditions. The Contractor may receive a written extension of time, signed by the DFCM, in which to complete the Work under this Contractor's Agreement in accordance with the General Conditions.

ARTICLE 4. CONTRACT DOCUMENTS. The Contract Documents consist of this Contractor's Agreement, the Conditions of the Contract (DFCM General Conditions, Supplementary and other Conditions), the Drawings, Specifications, Addenda and Modifications. The Contract Documents shall also include the bidding documents, including the Notice to Contractors, Instructions to Bidders/Proposers and the Bid/Proposal, to the extent not in conflict therewith and other documents and oral presentations that are documented as an attachment to the contract.

All such documents are hereby incorporated by reference herein. Any reference in this Contractor's Agreement to certain provisions of the Contract Documents shall in no way be construed as to lessen the importance or applicability of any other provisions of the Contract Documents.

ARTICLE 5. PAYMENT. The DFCM agrees to pay the Contractor from time to time as the Work progresses, but not more than once each month after the date of Notice to Proceed, and only upon Certificate of the A/E for Work performed during the preceding calendar month, ninety-five percent (95%) of the value of the labor performed and ninety-five percent (95%) of the value of materials furnished in place or on the site. The Contractor agrees to furnish to the DFCM invoices for materials purchased and on the site but not installed, for which the Contractor requests payment and agrees to safeguard and protect such equipment or materials and is responsible for safekeeping thereof and if such be stolen, lost or destroyed, to replace same.

CONTRACTOR'S AGREEMENT
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Such evidence of labor performed and materials furnished as the DFCM may reasonably require shall be supplied by the Contractor at the time of request for Certificate of Payment on account. Materials for which payment has been made cannot be removed from the job site without DFCM's written approval. Five percent (5%) of the earned amount shall be retained from each monthly payment. The retainage, including any additional retainage imposed and the release of any retainage, shall be in accordance with UCA 13-8-5 as amended. Contractor shall also comply with the requirements of UCA 13-8-5, including restrictions of retainage regarding subcontractors and the distribution of interest earned on the retention proceeds. The DFCM shall not be responsible for enforcing the Contractor's obligations under State law in fulfilling the retention law requirements with subcontractors at any tier.

ARTICLE 6. INDEBTEDNESS. Before final payment is made, the Contractor must submit evidence satisfactory to the DFCM that all payrolls, materials bills, subcontracts at any tier and outstanding indebtedness in connection with the Work have been properly paid. Final Payment will be made after receipt of said evidence, final acceptance of the Work by the DFCM as well as compliance with the applicable provisions of the General Conditions.

Contractor shall respond immediately to any inquiry in writing by DFCM as to any concern of financial responsibility and DFCM reserves the right to request any waivers, releases or bonds from Contractor in regard to any rights of Subcontractors (including suppliers) at any tier or any third parties prior to any payment by DFCM to Contractor.

ARTICLE 7. ADDITIONAL WORK. It is understood and agreed by the parties hereto that no money will be paid to the Contractor for additional labor or materials furnished unless a new contract in writing or a Modification hereof in accordance with the General Conditions and the Contract Documents for such additional labor or materials has been executed. The DFCM specifically reserves the right to modify or amend this Contractor's Agreement and the total sum due hereunder either by enlarging or restricting the scope of the Work.

ARTICLE 8. INSPECTIONS. The Work shall be inspected for acceptance in accordance with the General Conditions.

ARTICLE 9. DISPUTES. Any dispute, PRE or Claim between the parties shall be subject to the provisions of Article 7 of the General Conditions. DFCM reserves all rights to pursue its rights and remedies as provided in the General Conditions.

ARTICLE 10. TERMINATION, SUSPENSION OR ABANDONMENT. This Contractor's Agreement may be terminated, suspended or abandoned in accordance with the General Conditions.

CONTRACTOR'S AGREEMENT
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ARTICLE 11. DFCM'S RIGHT TO WITHHOLD CERTAIN AMOUNT AND MAKE USE THEREOF. The DFCM may withhold from payment to the Contractor such amount as, in DFCM's judgment, may be necessary to pay just claims against the Contractor or Subcontractor at any tier for labor and services rendered and materials furnished in and about the Work. The DFCM may apply such withheld amounts for the payment of such claims in DFCM's discretion. In so doing, the DFCM shall be deemed the agent of Contractor and payment so made by the DFCM shall be considered as payment made under this Contractor's Agreement by the DFCM to the Contractor. DFCM shall not be liable to the Contractor for any such payment made in good faith. Such withholdings and payments may be made without prior approval of the Contractor and may be also be prior to any determination as a result of any dispute, PRE, Claim or litigation.

ARTICLE 12. INDEMNIFICATION. The Contractor shall comply with the indemnification provisions of the General Conditions.

ARTICLE 13. SUCCESSORS AND ASSIGNMENT OF CONTRACT. The DFCM and Contractor, respectively bind themselves, their partners, successors, assigns and legal representatives to the other party to this Agreement, and to partners, successors, assigns and legal representatives of such other party with respect to all covenants, provisions, rights and responsibilities of this Contractor's Agreement. The Contractor shall not assign this Contractor's Agreement without the prior written consent of the DFCM, nor shall the Contractor assign any moneys due or to become due as well as any rights under this Contractor's Agreement, without prior written consent of the DFCM.

ARTICLE 14. RELATIONSHIP OF THE PARTIES. The Contractor accepts the relationship of trust and confidence established by this Contractor's Agreement and covenants with the DFCM to cooperate with the DFCM and A/E and use the Contractor's best skill, efforts and judgment in furthering the interest of the DFCM; to furnish efficient business administration and supervision; to make best efforts to furnish at all times an adequate supply of workers and materials; and to perform the Work in the best and most expeditious and economic manner consistent with the interests of the DFCM.

ARTICLE 15. AUTHORITY TO EXECUTE AND PERFORM AGREEMENT. Contractor and DFCM each represent that the execution of this Contractor's Agreement and the performance thereunder is within their respective duly authorized powers.

ARTICLE 16. ATTORNEY FEES AND COSTS. Except as otherwise provided in the dispute resolution provisions of the General Conditions, the prevailing party shall be entitled to reasonable attorney fees and costs incurred in any action in the District Court and/or appellate body to enforce this Contractor's Agreement or recover damages or any other action as a result of a breach thereof.

CONTRACTOR'S AGREEMENT
PAGE NO. 5

IN WITNESS WHEREOF, the parties hereto have executed this Contractor's Agreement on the day and year stated hereinabove.

CONTRACTOR: _____

Signature _____ Date _____

Title: _____

State of _____)

)

County of _____)

Please type/print name clearly

On this ____ day of _____, 20____, personally appeared before me, _____, whose identity is personally known to me (or proved to me on the basis of satisfactory evidence) and who by me duly sworn (or affirmed), did say that he (she) is the _____ (title or office) of the firm and that said document was signed by him (her) in behalf of said firm.

Notary Public

(SEAL)

My Commission Expires _____

APPROVED AS TO FORM:
ATTORNEY GENERAL
April 24, 2013
By: ALAN S. BACHMAN
Asst Attorney General

**DIVISION OF FACILITIES CONSTRUCTION
AND MANAGEMENT**

*/S/ DFCM

DFCM

Approved for expenditure:

*/S/ Division of Finance

Division of Finance

Approved as to availability of funds:

*/S/ David D. Williams, Jr.

David D. Williams, Jr.

CBA Financial Director

* Electronic signatures are effective when the AIM Status History page is attached to this agreement following this signature page. The AIM Status History page identifies the State signatures.

PERFORMANCE BOND

(Title 63, Chapter 56, U. C. A. 1953, as Amended)

That _____ hereinafter referred to as the "Principal" and _____, a corporation organized and existing under the laws of the State of _____, with its principal office in the City of _____ and authorized to transact business in this State and U. S. Department of the Treasury Listed (Circular 570, Companies Holding Certificates of Authority as Acceptable Securities on Federal Bonds and as Acceptable Reinsuring Companies); hereinafter referred to as the "Surety," are held and firmly bound unto the State of Utah, hereinafter referred to as the "Obligee," in the amount of _____ DOLLARS (\$) for the payment whereof, the said Principal and Surety bind themselves and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written Contract with the Obligee, dated the _____ day of _____, 20____, to construct _____ in the County of _____, State of Utah, Project No. _____, for the approximate sum of _____ Dollars (\$_____), which Contract is hereby incorporated by reference herein.

NOW, THEREFORE, the condition of this obligation is such that if the said Principal shall faithfully perform the Contract in accordance with the Contract Documents including, but not limited to, the Plans, Specifications and conditions thereof, the one year performance warranty, and the terms of the Contract as said Contract may be subject to Modifications or changes, then this obligation shall be void; otherwise it shall remain in full force and effect.

No right of action shall accrue on this bond to or for the use of any person or corporation other than the state named herein or the heirs, executors, administrators or successors of the Owner.

The parties agree that the dispute provisions provided in the Contract Documents apply and shall constitute the sole dispute procedures of the parties.

PROVIDED, HOWEVER, that this Bond is executed pursuant to the Provisions of Title 63, Chapter 56, Utah Code Annotated, 1953, as amended, and all liabilities on this Bond shall be determined in accordance with said provisions to the same extent as if it were copied at length herein.

IN WITNESS WHEREOF, the said Principal and Surety have signed and sealed this instrument this _____ day of _____, 20____.

WITNESS OR ATTESTATION:**PRINCIPAL:**

By: _____

(Seal)

Title: _____

WITNESS OR ATTESTATION:**SURETY:**

By: _____

Attorney-in-Fact

(Seal)

STATE OF _____)
) ss.

COUNTY OF _____)

On this _____ day of _____, 20____, personally appeared before me _____, whose identity is personally known to me or proved to me on the basis of satisfactory evidence, and who, being by me duly sworn, did say that he/she is the Attorney in-fact of the above-named Surety Company and that he/she is duly authorized to execute the same and has complied in all respects with the laws of Utah in reference to becoming sole surety upon bonds, undertakings and obligations, and that he/she acknowledged to me that as Attorney-in-fact executed the same.

Subscribed and sworn to before me this _____ day of _____, 20____.

My commission expires: _____

Resides at: _____

NOTARY PUBLIC

Agency: _____
Agent: _____
Address: _____
Phone: _____

Approved As To Form: May 25, 2005
By Alan S. Bachman, Asst Attorney General

PAYMENT BOND

(Title 63, Chapter 56, U. C. A. 1953, as Amended)

KNOW ALL PERSONS BY THESE PRESENTS:

That _____ hereinafter referred to as the "Principal," and _____, a corporation organized and existing under the laws of the State of _____ authorized to do business in this State and U. S. Department of the Treasury Listed (Circular 570, Companies Holding Certificates of Authority as Acceptable Securities on Federal Bonds and as Acceptable Reinsuring Companies); with its principal office in the City of _____, hereinafter referred to as the "Surety," are held and firmly bound unto the State of Utah hereinafter referred to as the "Obligee," in the amount of _____ Dollars (\$ _____) for the payment whereof, the said Principal and Surety bind themselves and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written Contract with the Obligee, dated the _____ day of _____, 20____, to construct _____ in the County of _____, State of Utah, Project No. _____ for the approximate sum of _____ Dollars (\$ _____), which contract is hereby incorporated by reference herein.

NOW, THEREFORE, the condition of this obligation is such that if the said Principal shall pay all claimants supplying labor or materials to Principal or Principal's Subcontractors in compliance with the provisions of Title 63, Chapter 56, of Utah Code Annotated, 1953, as amended, and in the prosecution of the Work provided for in said Contract, then, this obligation shall be void; otherwise it shall remain in full force and effect.

That said Surety to this Bond, for value received, hereby stipulates and agrees that no changes, extensions of time, alterations or additions to the terms of the Contract or to the Work to be performed thereunder, or the specifications or drawings accompanying same shall in any way affect its obligation on this Bond, and does hereby waive notice of any such changes, extensions of time, alterations or additions to the terms of the Contract or to the Work or to the specifications or drawings and agrees that they shall become part of the Contract Documents.

PROVIDED, HOWEVER, that this Bond is executed pursuant to the provisions of Title 63, Chapter 56, Utah Code Annotated, 1953, as amended, and all liabilities on this Bond shall be determined in accordance with said provisions to the same extent as if it were copied at length herein.

IN WITNESS WHEREOF, the said Principal and Surety have signed and sealed this instrument this _____ day of _____, 20____.

WITNESS OR ATTESTATION:**PRINCIPAL:**

By: _____
(Seal)

Title: _____

WITNESS OR ATTESTATION:**SURETY:**

STATE OF _____)
) ss.
COUNTY OF _____)

By: _____
Attorney-in-Fact (Seal)

On this _____ day of _____, 20____, personally appeared before me _____, whose identity is personally known to me or proved to me on the basis of satisfactory evidence, and who, being by me duly sworn, did say that he/she is the Attorney-in-fact of the above-named Surety Company, and that he/she is duly authorized to execute the same and has complied in all respects with the laws of Utah in reference to becoming sole surety upon bonds, undertakings and obligations, and that he/she acknowledged to me that as Attorney-in-fact executed the same.

Subscribed and sworn to before me this _____ day of _____, 20____.

My commission expires: _____

Resides at: _____

NOTARY PUBLIC

Agency: _____
Agent: _____
Address: _____
Phone: _____

Approved As To Form: May 25, 2005
By Alan S. Bachman, Asst Attorney General

**Division of Facilities Construction and Management****DFCM****CERTIFICATE OF SUBSTANTIAL COMPLETION**

PROJECT: _____ PROJECT NO.: _____ COUNTY: _____

AGENCY/INSTITUTION: _____

AREA ACCEPTED: _____

The Work performed under the subject Contract has been reviewed on this date and found to be Substantially Completed as defined in the General Conditions; including that the construction is sufficiently completed in accordance with the Contract Documents, as modified by any change orders agreed to by the parties, so that the State of Utah can occupy the Project or specified area of the Project for the use for which it is intended.

DFCM accepts the Project or specified area of the Project as Substantially Complete and will assume full possession of the Project or specified area of the Project at _____ (time) on _____ (date).

DFCM accepts the Project for occupancy and agrees to assume full responsibility for maintenance and operation, including utilities and insurance, of the Project subject to the itemized responsibilities and/or exceptions noted below:

The Owner acknowledges receipt of the following closeout and transition materials:

Record Drawings O & M Manuals Warranty Documents Completion of Training Requirements

A list of items to be completed or corrected (Punch List) is attached hereto. The failure to include an item on it does not alter the responsibility of the Contractor to complete all the Work in accordance with the Contract Documents, including authorized changes thereof. The amount of _____ (Twice the value of the punch list work) shall be retained to assure the completion of the punch list work.

The Contractor shall complete or correct the Work on the list of (Punch List) items appended hereto within _____ calendar days from the above date of issuance of this Certificate. If the list of items is not completed within the time allotted the Owner has the right to be compensated for the delays and/or complete the work with the help of independent contractor at the expense of the retained project funds. If the retained project funds are insufficient to cover the delay/completion damages, the Owner shall be promptly reimbursed for the balance of the funds needed to compensate the Owner.

Contractor (include name of Firm) and PRINTED NAME Email Date

A/E (include name of Firm) and PRINTED NAME Email Date

Agency and PRINTED NAME Email Date

DFCM and PRINTED NAME Email Date

PAST PERFORMANCE RATING EVALUATION				
DATE		Address		
Firm Name		City, State & Zip Code		
Firm Contact		Phone Number		
Project Number & Name				
Project Manager		Completion Date		
Service Provided		Contract Amount		
RATINGS GUIDE	Quality of Product or Service	Cost Control	Timeliness of Performance	Business Relations
5-exceptional	Contractor/AE has demonstrated an exceptional level in any of the above four categories that justifies adding a point to the score. Contractor performance clearly exceeds the performance levels described as "Above Average"			
4-Above Average	Contractor/AE is in compliance with contract requirements and or delivers quality product or service	Contractor/AE is effective in managing costs and submits current, accurate, and complete billings	Contractor/AE is effective in meeting milestones and delivery schedule	Response to inquiries, technical, service, administrative issues is effective
3-Average	Minor inefficiencies/errors have been identified	Contractor/AE is usually effective in managing cost effectively	Contractor/AE is usually effective in meeting milestones and delivery schedules.	Response to inquiries, technical, service, administrative issues is somewhat effective
2-Below Average	Major problems have been encountered	Contractor/AE is having major difficulty managing cost.	Contractor/AE is having major difficulty meeting milestones and delivery schedule.	Response to inquiries, technical, service, and administrative issues is marginally effective.
1-Unsatisfactory	Contractor/AE is not in compliance & is jeopardizing achievement of contract objectives.	Contractor/AE is unable to manage costs effectively.	Contractor/AE delays are jeopardizing performance of contract objectives	Response to inquiries, technical, service, and administrative issues is not effective.
Rate the Following		COMMENTS		
Quality of Product or Service	0			
Cost Control	0			
Timeliness of Performance	0			
Business Relations	0			
Overall Rating	0.00			

USP Background Check Form

The following information is needed to perform a Criminal Background check. All Items must be filled in unless it doesn't apply to them. (n/a)

Project #:

Full Name:

Date of Birth:

Social Security #: XXX-XX- Last 4 digits only unless requested

Driver's License #:

State Issued:

ID# : (if applies)

Vehicles that will be brought into secured areas to work from will need to be put on the clearance.

Vehicle Make:

Model:

Plate #:

This information is to be **FAXED ONLY** to the Attn: **Shawn Anderson**

Fax # - **801-545-5702**.

*NOTE- Mobile Phones and computer laptops etc. are not allowed inside the secured area.

If you have question about your background check please contact-

Project Coordinator: **Shawn Anderson**

Phone#: **801-244-9201**

Updated 5-22-2014

Utah Department of Corrections (DRAPER SITE)

OUTSIDE CONTRACTOR RULES AND REGULATIONS

1. All contractors, sub-contractors, workers, architects, etc. must have picture identification on their person while working at the Prison. A Utah Driver's License or Driver's License Division I. D. is preferred, but we will accept pictured military I. D., etc.
2. All contractors, sub-contractors, workers, architects, etc. must have reached at least 18 years of age before they will be allowed to work on Utah Department of Corrections property.
3. No unlocked vehicles may be left unattended.
4. No running vehicles may be left unattended.
5. No keys may be left in vehicles.
6. Park all vehicles and equipment away from fences - a minimum of 50 feet.
7. No solid white work clothes may be worn.
8. Do not run - especially toward or away from any fence line.
9. Absolutely No "visiting" with inmates.
10. Nothing may be given to inmates. Giving contraband to inmates is a felony!

11. Nothing may be taken from inmates.
12. No tools may be left unattended. Unattended tools will be confiscated.
13. Do not throw away broken or worn out saw blades of any kind at the prison site. Dispose of them off property, at your home, shop, or office, or you may give them to the security officer.
14. Explosive cartridges for Hilti guns, etc. must be locked up and/or strictly supervised at all times. Cartridge "clips" shall be disposed of away from prison property. This also includes individual load shell casings. If you have a Hilti gun, etc. in your equipment, the gate security officer for your construction site must be notified.
15. No weapons, ammunition, explosives, drugs, alcoholic beverages, poisons, acids or other dangerous objects or hazardous substances are allowed on prison property. Tobacco in any form is not allowed inside the secure fences. Contractors who need to smoke will be required to go outside the secure fences to smoke. Required prescription "medicines" can be carried in limited daily dosages only. These items will be confiscated if found and appropriate action will be taken.
16. Anyone entering prison property is subject to search of his property, person, and vehicle. Failure to submit to this search will result in expulsion from prison property and/or arrest upon probable cause.
17. Any statutory or illegal contraband or other controlled items, as stipulated by this document, found on a person in a work area or in a vehicle will be confiscated. Vehicles may also be confiscated. Any item violating state law will result in an investigation and/or arrest by the prison Security personnel or local law enforcement agency. If any statutory or illegal contraband or other controlled items are brought to the prison a second time, access to prison property will be denied permanently.

18. Any person who the officer believes is arriving at the prison impaired by alcohol or drugs shall be denied access to prison property and may also be detained pending arrival of an Enforcement Officer who will determine if a citation or arrest is warranted.
19. When working inside the prison fence lines, all traffic is checked, searched, and cleared at our main truck gate sally ports. In order to help us expedite your traffic, all trips through the gates should be limited to those which are absolutely necessary. 'Car pooling' in company vehicles from the main prison parking areas into the construction site is required. When checking in through the prison gates, all workers in any and all vehicles must get out of the vehicle and stand next to it while it is searched and their identity is verified.
20. Private vehicles used primarily for transportation will not be allowed into construction sites. "Company" and/or primary "work" vehicles will be permitted.
21. Foot traffic into construction sites is encouraged when practical.
22. Driver's licenses or other picture I.D. of all workers will be taken at the gates to the construction sites for I.D. and control purposes. A temporary pass from that gate will be issued to be worn in plain sight while working on site. Upon departure from the work site, this temporary pass will be returned to the gate that issued the pass and personal Driver License or other Id will be returned upon exit.
23. In the event of a prison emergency, i.e., fire, escape, riot, etc., all construction sites will be secured and traffic to and from the sites halted. Work within the sites will be allowed to continue normally as long as there is no physical threat to the site(s). When the emergency has been verified and resolved, the site will be re-opened to traffic. If evacuation of a site is necessary, everyone will be expected to gather in one central location identified by the security officer, and then will be escorted off property

by security personnel. All emergency situations will be resolved as soon as possible.

24. Work hours for construction within the prison fences will normally be limited strictly to daylight hours, Monday through Friday. If early morning, late evening, weekend, or holiday work is planned or needed, the project security staff must be contacted at least 72 hours in advance of approval.
25. Ex-inmates or parolees are normally not permitted to work on prison projects.

NOTE: Specific limitations may be listed as part of your project specifications. Report any known or suspected ex-inmates, parolees, or convicted felons to Jerry Jensen/ Facilities Bureau at the Utah State Department of Corrections 557-1223

All contractors, subcontractors, employees, and other personnel working on prison projects are subject to having a criminal identification check process. Anyone with a verified record of criminal activity, deemed to pose a potential hazard to prison security, may be denied access to prison property.

26. Ladders may not be left unsecured in construction areas at night or on weekends, holidays, etc. when no work is going on.
 - A. Portable ladders must be removed from the work site and secured inside locked construction trailers or be secured outside of the fenced perimeter at the end of every workday.
 - B. Larger, heavier ladders and scaffolding may, with approval by internal security, be secured by chains and padlocks to immovable objects within the construction area, but safely away from all fences.

NOTE: Ladders which are not secured as per the above instructions will be confiscated.

27. Cutting torches and equipment shall not be left unattended in construction areas. All cutting torches, fuel tanks, etc. must be maintained on carts or vehicles and be removed from construction sites at the end of each work day.,
28. Contractors will not be permitted to store flammable liquids or fuel tanks within the security fence perimeter. Contractors will be assigned a specific approved storage area for any such items on request.
29. No vehicles or motorized construction equipment may be left inside the security fence perimeter when no construction work going on unless mechanically disabled and proper authorization is obtained in writing from UDC security.
30. Contractors are responsible to provide their own portable restrooms for construction sites. Contractors will not be allowed access to occupied prison facilities to utilize restrooms unless restrooms are located in the immediate work area.
31. Contractors will not be given access to the prison dining room for meals unless construction work is in the specific kitchen/dining room area and the Warden's and Support Services approval is granted in advance.
32. All contractors will be required to clean up all construction sites, debris and "extra" construction supplies from work areas on a daily basis. Construction debris must be hauled away immediately or placed in a designated disposal site at the prison. Extra construction supplies must be returned to the designated supply/construction yard or retained in construction vehicles until the next workday.

33. Contractors working at the Draper site on authorized bid projects are responsible to provide all of their own tools and equipment for the work involved in those projects. The prison will normally not permit contractor use of state-owned shops, tools, or equipment.
34. All contractors working at the Draper site are required to fully comply with all OSHA work safety requirements; take prudent precautions to protect the work site and adjacent facilities from damage; and to provide appropriate safety equipment, including fire extinguisher and other "fire protection devices" for their work areas.
35. All contractors working at the Draper site are required to take reasonable precautions to avoid causing damage to the existing facility and its utility lines, etc. in the course of completing their authorized project. Special attention shall be given to utility lines that may be buried, or imbedded in walls, under floors, etc. The Draper maintenance staff will provide the best available information on what lines are known or suspected in any given area. The contractors are responsible to use due care to eliminate and/or minimize damages. When and if damage occurs, the contractors are required to cooperate fully with prison maintenance or other emergency personnel to assist with and expedite any repairs required to restore normal prison services and operations. Negligence or carelessness on the part of any contractor that results in all or part of any damage will result in that contractor being held liable for all or part of the damages. In all cases, the extent of any such liability will be negotiated with the primary or general contractor responsible for the project. In accepting the award of any project at the Utah State Prison, Draper site, the contractor also agrees to negotiate any such damages in good faith with prison representatives.
36. All planned interruptions to utilities (Water, sewer, gas, electrical, steam etc.) Will require a written request to:

Jerry Jensen / Facilities Director

14717 So. Minuteman Dr.

Draper, Utah. 84020

This request can also be faxed to (801) 545-5702 attn: Jerry

Please allow least five working days prior to the scheduled outage or interruption. If an emergency occurs and the utility service needs to be interrupted to facilitate repairs or to prevent risk to life or property it is expected that all efforts be made to promptly respond and correct the problem, and notification to facility maintenance be done so emergency response can be in-acted to maintain order and proper operation of the institution.

If you have any questions regarding these regulations or need a special exemption, clarifications, etc., contact Jerry Jensen (801) 557-1223 or email jerryjensen@utah.gov

NOTE: These rules are subject to review and change at any time.

CONT_RULES AND REGULATIONS.DOC

	STATE OF UTAH - DEPARTMENT OF ADMINISTRATIVE SERVICES Division of Facilities Construction and Management	DFCM
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Stage II - PROJECT SCHEDULE

BIDSYNC BID # DA14027

PROJECT NAME:		INTERCOM & PAGING SYSTEM REMODEL DRAPER PRISON WASATCH & OQUIRRH BUILDINGS DEPARTMENT OF CORRECTIONS-DRAPER, UTAH		
DFCM PROJECT NO:		13304100		
Event	Day	Date	Time	Place
Stage II Bidding Documents Available	Friday	May 30, 2014	3:00 PM	DFCM web site *
Background Check Form Submitted to Shawn Anderson at the Dept. of Corrections	Wednesday	June 4, 2014	4:00 PM	Fax the USP Background Check Form to: 801 545-5702 Attn. Shawn Anderson
Mandatory Pre-bid Site Meeting	Tuesday	June 10, 2014	8:30 AM	Corrections Administration Building 14717 Minuteman Drive Draper, Utah
Deadline for Submitting Questions	Wednesday	June 18, 2014	4:00 PM	BidSync Web site**
Addendum Deadline (exception for bid delays)	Tuesday	June 24, 2014	5:00 PM	BidSync Web site**
Prime Contractors Turn in Bid and Bid Bond	Thursday	June 26, 2014	2:30 PM	BidSync Web site**
Subcontractors List Due	Friday	June 27, 2014	2:30 PM	E-mail: dfcmcontracts@utah.gov
Substantial Completion Date	Friday	November 28, 2014		

NOTE: * DFCM's web site address is www.dfc.utah.gov.
 ** BidSync web site address is www.bidsync.com.

[illegible]

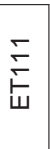
EXISTING PANELS, SEE SHEET DTD112 FOR DETAILS.
DISCONNECT SERVICE AND RETURN SPEAKERS TO THE OWNERS. EXISTING SPEAKER ENCLOSURE AND GRILLS TO REMAIN IN PLACE FOR FUTURE RE-USE. CABLES ASSOCIATED WITH SPEAKERS BACK TO EXISTING AMP/PIPS COMPLETELY.
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1 WASATCH B LEVEL 1 DEMO

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KEY NOTES

1. KEY PANE, CHAIRS AND TABLES TO BE PLACED TO MATCH PANS

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6 KEY SWITCH DETAIL

ET112 SCALE: 1/8" = 1'-0"

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1 B-BLOCK LEVEL 1 CONTROL PANEL

ET112 SCALE: 1/8" = 1'-0"

2 B-BLOCK LEVEL 2 CONTROL PANEL

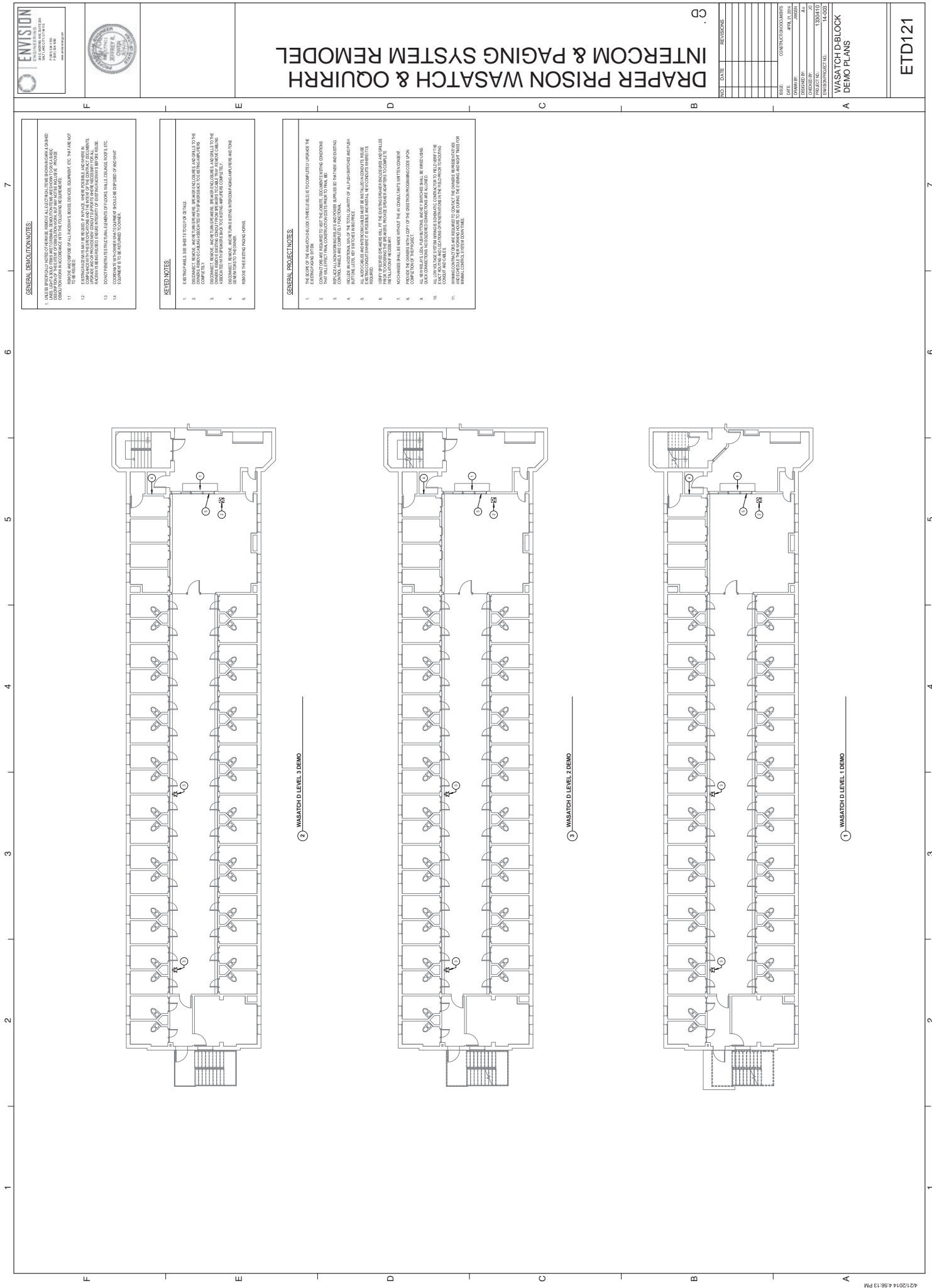
ET112 SCALE: 1/8" = 1'-0"

3 B-BLOCK LEVEL 3 CONTROL PANEL

ET112 SCALE: 1/8" = 1'-0"

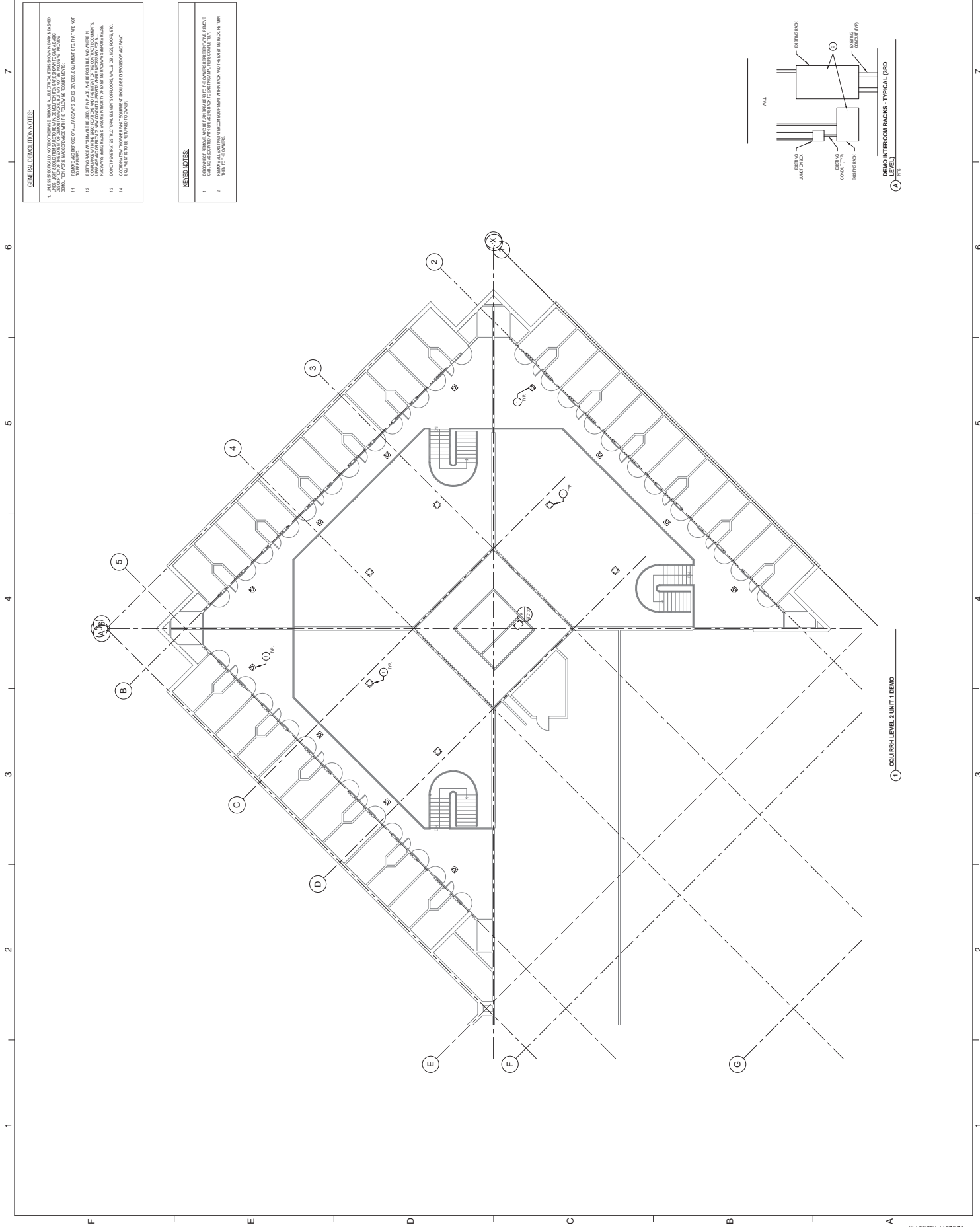
WASATCH B-BLOCK
CONTROL PANEL
DETAILS

14-003



BUILDING 4



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DRAPER PRISON WASATCH & OQUIRH
INTERCOM & PAGING SYSTEM REMODEL



ETD132



QQUIRRH HOUSING
UNITS CONTROL
PANEL DEMO PLAN

ETD133

DRAPER PRISON WASATCH & OQUIRH
INTERCOM & PAGING SYSTEM REMODEL





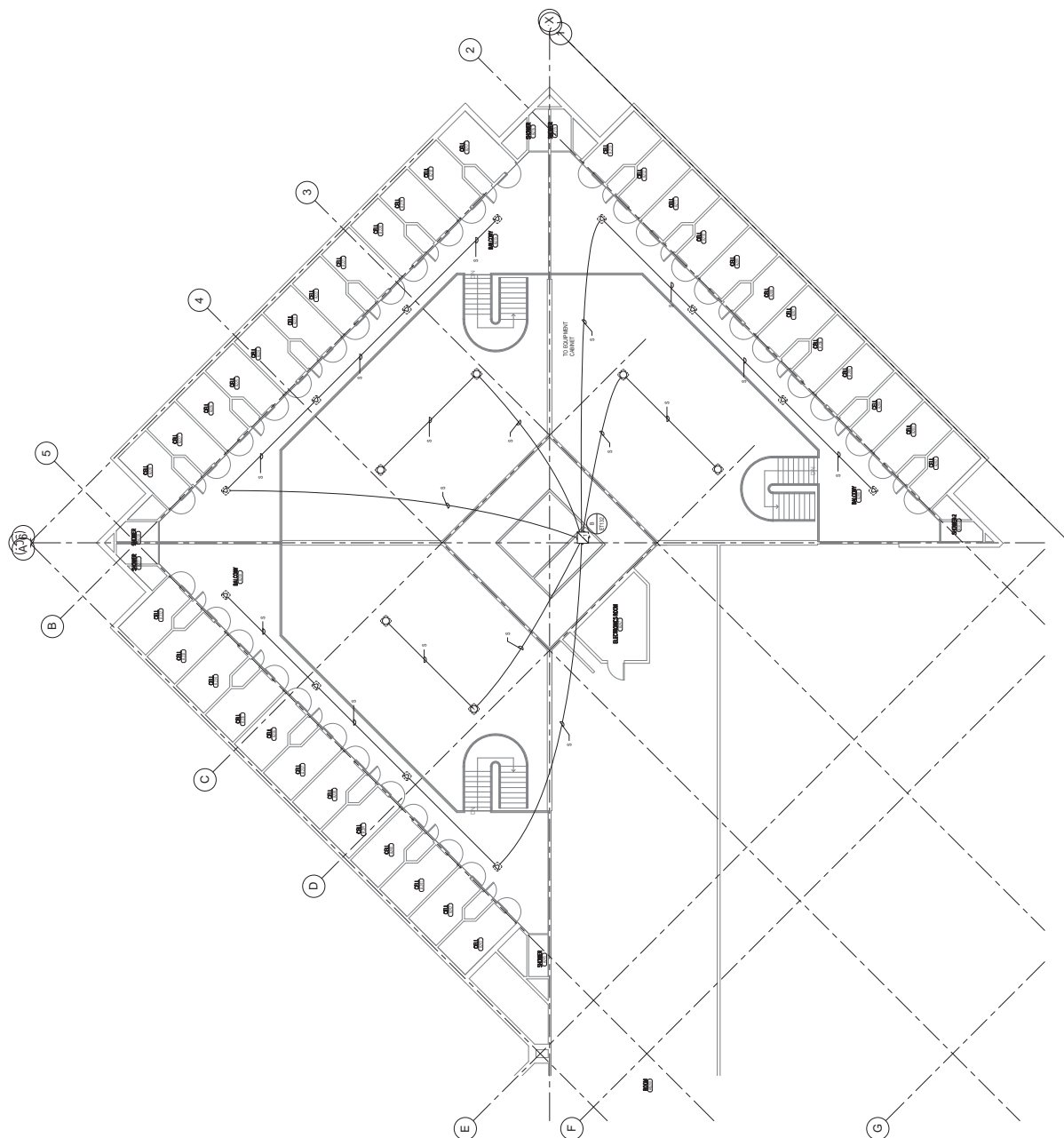
DRAPER PRISON WASATCH & OQUIRH
INTERCOM & PAGING SYSTEM REMODEL

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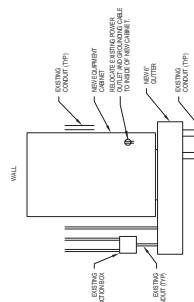
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OQUIRRH HOUSING
 UNITS 1,2,3 & 4
 MEZZANINE LEVEL

ET132



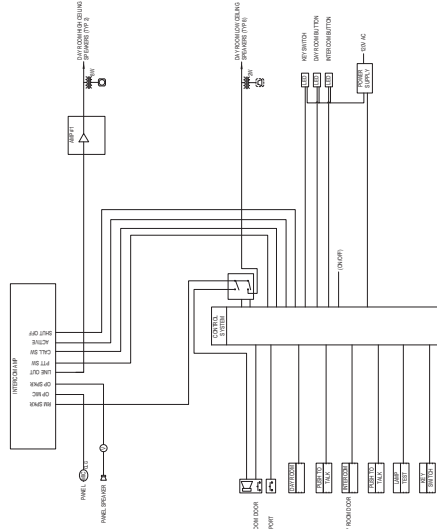
1 OQUIRRH LEVEL 2 UNIT 1



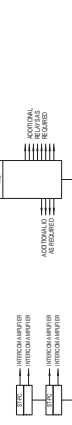
NEW EQUIPMENT CABINET (ON THE 3RD LEVEL) - TYPICAL



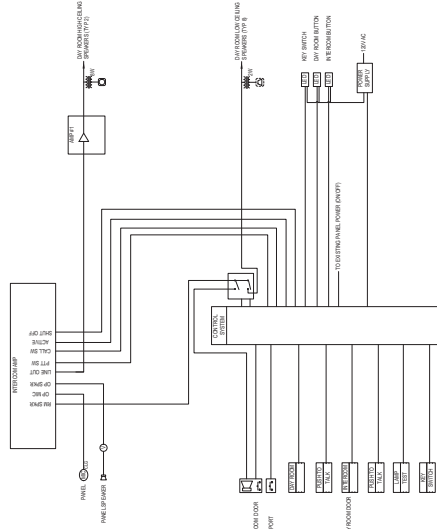
PANEL #1 RISER FOR UNIT 1



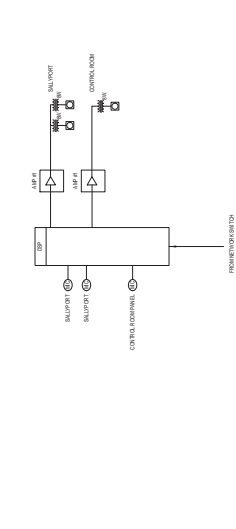
CONTROL SYSTEM RISER, TYPICAL



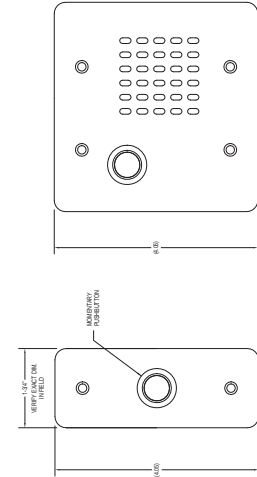
PANEL #2A RISER FOR UNIT 1



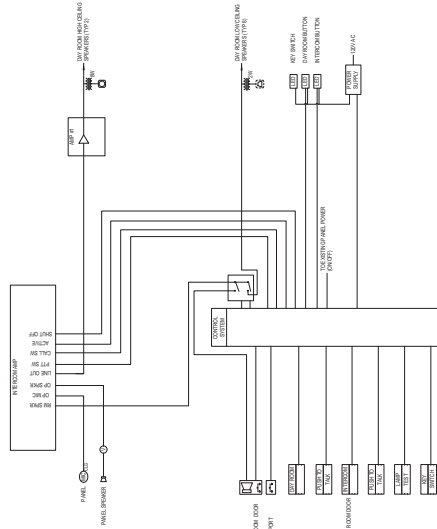
CONTROL ROOM INTERCOM SYSTEM, TYPICAL



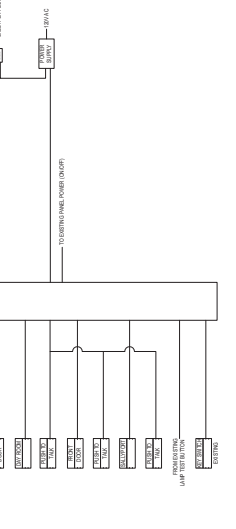
CALL STATION DETAILS



PANEL #3 RISER FOR UNIT 1



PANEL #2B RISER FOR UNIT 1



DRAPER PRISON WASATCH & OQUIRH INTERCOM & PAGING SYSTEM REMODEL

ET135

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DRAPER PRISON WASATCH & OQUIRRH INTERCOM & PAGING SYSTEM REMODEL



DFCM NO. 13304100

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SECTION 260001 – ELECTRICAL GENERAL PROVISIONS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.
- B. Architectural, Structural, Mechanical and other applicable documents also apply to work of this section.

1.2 DESCRIPTION OF WORK:

- A. The contract documents indicate the extent of electrical work. Provide all labor, materials, equipment, supervision and service necessary for a complete electrical system as described in divisions 26, 27, and 28.

1.3 RELATED SECTIONS:

- A. Other Divisions relating to electrical work apply to the work of this section. See other applicable Divisions including, but not necessarily limited to:
 - 1. Division 1 – General and Supplementary Conditions
 - 2. Division 2 – Existing Conditions
 - 3. Division 3 – Concrete
 - 4. Division 5 – Metals
 - 5. Division 6 – Wood, Plastics, and Composites
 - 6. Division 7 – Thermal and Moisture Protection
 - 7. Division 8 – Openings
 - 8. Division 9 – Finishes
 - 9. Division 21 – Fire Suppression
 - 10. Division 22 – Plumbing
 - 11. Division 23 – Heating Ventilating and Air Conditioning
 - 12. Division 27 – Communications
 - 13. Division 28 – Electronic Safety and Security

1.4 INTERPRETATIONS OF DRAWINGS AND SPECIFICATIONS:

- A. Prior to bidding the job, submit requests for clarification in writing to the Architect/Engineer prior to issuance of the final addendum.
- B. After signing the contract, provide all materials, labor, and equipment to meet the intent, purpose, and function of the contract documents.
- C. The following terms used in Division 26, 27, and 28 documents are defined as follows:
 - 1. "Provide" - Means furnish, install, and connect, unless otherwise indicated.
 - 2. "Furnish" - Means purchase new and deliver in operating order to project site.
 - 3. "Install" - Means to physically install the items in-place.
 - 4. "Connect" - Means make final electrical connections for a complete operating piece of equipment. This includes providing conduit, wire, terminations, etc. as applicable.

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5. "Or Equivalent" - Means to provide equivalent equipment. Such equipment must be approved by the Engineer prior to bidding.

1.5 EXAMINATION OF SITE:

- A. Visit the site and verify existing field conditions prior to submitting bid.
- B. All costs arising from site conditions and/or preparation shall be included in the base bid. No additional charges will be allowed due to inadequate site inspection.

1.6 QUALITY ASSURANCE:

- A. Perform work in accordance with all governing codes, rules, and regulations including the following minimum codes (latest editions or as otherwise accepted by the Authorities Having Jurisdiction):
 1. National Electric Code (NEC)
 2. International Building Code (IBC)
 3. International Fire Code (IFC)
 4. International Mechanical Code (IMC)
 5. International Plumbing Code (IPC)
 6. American Disability Act (ADA)
 7. National Electrical Safety Code (NESC)
 8. Local Codes and Ordinances
- B. Comply with all standards where applicable for equipment and materials including the following minimum standards:
 1. Underwriter's Laboratories (UL)
 2. American Society for testing Materials (ASTM)
 3. Certified Ballast Manufacturers (CBM)
 4. Insulated Cable Engineers Association (ICEA)
 5. National Electrical Manufacturer's Institute (NEMA)
 6. American National Standards Institute (ANSI)
 7. Electrical Testing Laboratories (ETL)
 8. National Fire Protection Association (NFPA)
 9. Institute of Electrical and Electronics Engineers (IEEE)
 10. American Institute of Electrical Engineer's Electrical Power
 11. Systems and Grounding in Commercial Construction
 12. Illuminating Engineers Society (IES)
- C. Provide new electrical equipment conforming to all requirements as set forth in the above standards. Provide UL labeled equipment where such label is applicable.
- D. Comply with all state and local codes and ordinances. When conflicts occur among codes, standards, drawings, and/or specifications, the most stringent requirements shall govern.
- E. Obtain all permits, inspections, etc. required by authority having jurisdiction. Include all fees in bid. Provide a certificate of approval to the owner's representative from the inspection authority at completion of the work.
- F. Provide only first-class workmanship from competent workers, conforming to the best electrical construction practices.
- G. The contractor shall have a current state contracting license applicable to type of work to be

performed under this contract.

1.7 SUBMITTALS:

- A. The contractor shall submit complete shop drawings and other required submittals. Incomplete submittals will be returned to the contractor unreviewed. No time extensions or cost increases will be allowed for delays caused by the return of incomplete submittals.
- B. Shop Drawings: After the contract is awarded, but prior to manufacture or installation of any equipment, submit eight (8) complete sets of shop drawings. Partially complete sets of shop drawings are not acceptable. Submit all shop drawings in one complete submittal package. Prior to submitting shop drawings, review and certify that they are in compliance with the contract documents; Sign all approved shop drawings. Allow a minimum of two weeks for architect/engineer to review shop drawings. Refer to architectural general provision section for additional requirements.
- C. Provide equipment catalog "cut sheets", brochures and/or drawings which clearly describe the proposed equipment. Include plans, elevations, sections, isometrics, and detailed engineering and dimensional information as applicable including equipment room layouts. Electrical room layouts are required to show all electrical equipment locations for all projects that include electrical rooms. Do not submit catalog sheets which describe several different items in addition to those items to be used, unless all relevant information is clearly identified. Bind each information set in three ring binder or binders of sufficient size or sizes to enclose all information. Organize all information by section. Provide separate tabbed covers for each section of Divisions 26, 27, and 28, indicating section number for each section requiring submittals.
- D. Include on front cover of binder or binders the name and location of the project, architect, electrical engineer, general contractor, electrical contractor, subcontractors, supplier/vendor, order number, volume, date, and any other applicable information. Certify that shop drawings are submitted in accordance with the contract documents with a written statement indicating compliance. Submittals will be reviewed and comments produced two times maximum. Additional reviews will be billed at current rates.

1.8 OPERATION AND MAINTENANCE MANUALS:

- A. Submit four (4) complete sets of operating instruction and maintenance manuals for all equipment and materials provided under Divisions 26, 27, and 28.
- B. Provide manufacturer's recommended operating and maintenance instructions, cleaning and servicing requirements, serial and model number of each piece of equipment, complete list of replacement parts, performance curves and data, wiring diagrams, warranties, and vendor's name, address, and phone numbers. Do not submit information which describes several different items in addition to those items to be used, unless all relevant information is clearly identified. Assemble all data in completely indexed volume or volumes. Engrave the job title, and name, address, and phone numbers of the contractor on the front cover and on the spine. Incomplete O&M manuals will be returned to the contractor for corrections / additions.

1.9 RECORD DRAWINGS:

- A. Maintain on a daily basis a complete set of "Red-Lined Drawings", reflecting an accurate record of all work including addendums, revisions, and changes. Indicate precise dimensioned locations of all concealed work and equipment, including concealed or embedded conduit, junction boxes, etc. Record all "Red-Lined Drawing" information on a set of full sized prints of the contract drawings.

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- B. Certify the "Red Lined Drawings" for correctness. Indicate on each drawing the name of the general and electrical contractors with signatures of each representative responsible for the work.
- C. The electrical engineering design firm will create record (as-built) drawings from the certified red-lined drawings; however, the general and electrical contractors retain the responsibility for the accuracy of the

1.10 WARRANTY:

- A. Ensure that the electrical system installed under this contract is in proper working order and in compliance with drawings, specifications, and/or authorized changes and is free from electrical defects. Without additional charge, replace or repair, to satisfaction of the owner's representative, except from ordinary wear and tear, any part of the installation which may fail or be determined unacceptable within a period of one (1) year after final acceptance or as otherwise indicated in individual sections, but in no case less than one year. Warranty incandescent and fluorescent lamps only for a period of two months from the date of substantial completion.
- B. Provide complete warranty information for each item including beginning of warranty period, duration of warranty, names, addresses, and telephone numbers and procedures for filling a claim and obtaining warranty services. Written warranties and guarantees are to be submitted separately as:
 - 1. Originals bound in a binder clearly identified with the title, "WARRANTIES AND GUARANTEES," the project name, the project number, and the Contractor's business name.
 - 2. Electronic documents in *.pdf format.

PART 2 – PRODUCTS

2.1 GENERAL:

- A. All materials shall be new and shall bear the manufacturer's name, trade name, and the approved testing laboratory such as the UL label in every case where a standard has been established for that particular material. Used materials are acceptable only if specifically indicated on drawings.

2.2 SUBSTITUTION OF MATERIALS:

- A. Provide only specified products or products approved by addendum. Substitutions will be considered if two copies of the proposal is received at the architect's/engineer's office eight (8) working days prior to the bid day. Include in the proposal the specified and proposed catalog numbers of the equipment under consideration and a catalog cut sheet(s) with pictorial and descriptive information. Certify that the equipment proposed is equal to that specified, that it has the same electrical and physical characteristics, compatible dimensions, and meets the functional intent of the contract documents.
- B. It is the responsibility of the contractor to make all substituted equipment comply with the intent of the contract documents and bear all cost associated with conflicts arising from the use of substituted equipment.
- C. Provide samples if so required by the architect or engineer before or after bid day.

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2.3 SPARE PARTS:

- A. Provide spare parts as specified in Divisions 26, 27, and 28 sections. Deliver all spare parts to owner's representative prior to substantial completion.

PART 3 – EXECUTION

3.1 GENERAL:

- A. Workmanship: Provide only first class workmanship from competent workers. Defective materials or workmanship will not be allowed on the project. Provide competent supervision for the work to be accomplished. Keep same foreman on the job, unless a change is authorized by the engineer.
- B. Coordination: Prior to construction, layout electrical work and coordinate work with other trades. Sequence, coordinate, and integrate installation of materials and equipment for efficient flow of the work. Coordinate the installation of required supporting devices and sleeves to be set in poured-in-place concrete and other structural components, as they are constructed. Install electrical equipment to facilitate maintenance and repair or replacement of equipment components. Coordinate the installation of electrical materials and equipment above ceilings with suspension system, mechanical equipment and systems, and structural components. Coordinate with all utilities including power, communication, and data installations.
- C. Provide cutting, drilling, channeling, etc. only as necessary for proper completion of the work. Do not cut structural members unless authorization is issued in writing by the architect/engineer.
- D. Repairs: Repair damage to building, grounds, or utilities as a result of work under this contract at no additional cost to the owner.
- E. Dimensioning: Electrical drawings indicate locations for electrical equipment only in their approximate location, unless specifically dimensioned. Do not scale electrical drawings for dimensional information. Refer to architectural drawings and shop drawings where applicable for locations of all electrical equipment. Field verify all dimension on the job site.
- F. Provide block-outs, sleeves, demolition work, etc., required for installation of work specified in this division.
- G. Standards: Provide electrical installation in accordance with manufacturer's written instructions, applicable requirements of NEC, NEMA standards, and NECA's "Standards of Installation", and in compliance with recognized industry practices to ensure that products fulfill requirements.
- H. All workmen doing work of any nature on State of Utah projects must at all times carry their electrician's license with them and show it upon request. The acceptable ratio of apprentice to journeyman electricians on the job is 1:1.

3.2 REQUESTS FOR INFORMATION:

- A. When it is clearly apparent that information is not adequately described in the construction documents or when a coordination problem exists, submit a request for information (RFI) through proper contractual channels. The electrical engineering design firm will provide a response through its contractual channel. Although verbal direction may be given to expedite changes, responses are not considered part of the contract documents until a change order has

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been issued and signed by the Owner or his designated representative. The Contractor shall bear all costs associated with proceeding on any change order that has not been approved by the Owner or his designated representative.

- B. Any damages caused by construction delays due to frivolous RFI's, will be born solely by the Contractor.

3.3 SAFETY PRECAUTIONS:

- A. Provide all necessary guards or construction barriers and take all necessary precautions to insure the safety of life and property.

3.4 CLEAN:

- A. Clean up all equipment, conduit, fittings, wire, packing cartons, plastic, and other debris that is a direct result of the installation of the work of this division, both during the execution, and at the conclusion, of the project. Keep the site clean and safe during the progress of the work. Clean fixtures, interior and exterior of all equipment, and raceways prior to final acceptance. Vacuum interior of all electrical panels and equipment. Correct any damaged equipment. Touch-up or repaint if necessary.

3.5 TEMPORARY POWER:

- A. Make arrangements with the proper institution authority for all temporary electricity.
- B. Provide temporary power, complete with metering and wiring for lighting and power outlets for construction tools and equipment. Report the initial meter reading to the owner/institution, or otherwise as may be directed.
- C. Service shall be provided with a main disconnect and all 20 ampere receptacles protected by 20 amp GFI, single-pole breakers. No attempt is made herein to specify construction power requirements for equipment in detail. Provide all electrical equipment and wiring as required.
- D. As soon as permanent power and metering is available, the temporary power supply shall be disconnected and removed from the project site.
- E. All temporary wiring shall meet the requirements of NEC Article 305 and the State Industrial Commission.

3.6 POWER OUTAGES:

- A. All power outages required for execution of this work shall occur during non-standard working hours and at the convenience of the owner. Any electrical service interruption will be coordinated at least 7 days in advance of the power shut-off. Include all costs for overtime work in bid. Coordinate all outages and proceed only after receiving authorization from the owner's representative. Keep all outages to an absolute minimum.

3.7 STORAGE AND PROTECTION OF MATERIALS:

- A. Provide storage space for storage of materials and apparatus and assume complete responsibility for all losses due to any cause whatsoever. Lost or damaged materials will be replaced at no additional cost to owner. Do not store materials and apparatus in any public thoroughfare or in any area on the site where such storage would constitute a hazard to persons in the vicinity. Protect completed work, work underway, and apparatus against loss or damage.

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3.8 FIRE PENETRATION SEALS:

- A. Seal all raceway and/or cable penetrations through fire-rated floors, wall, and ceilings to prevent the spread of smoke, fire, toxic gas or water through the penetration either before, during or after fire. Provide penetration sealants and fittings of ratings to match the rating of the penetrated materials so that the original fire rating of the floor or wall is maintained as required by Article 300-21 of the NEC.
- B. Sealant Systems: Provide sealants, wall wraps, partitions, caps, and other accessories complying with UL 1479 (ASTM E-814) from the following where applicable:
 - 1. 3M Fire Barrier Sealing Penetration System
 - 2. Chase Foam Fire Stop System
 - 3. Thomas and Betts Flame Safe Fire Stop System
 - 4. Nelson Fire Stop Products
- C. Fittings: Where applicable, provide OZ Type CFSF/I and CAFSF/I fire seal fittings for conduit and cable penetrations through concrete and masonry wall, floor, slabs, and similar structures.
- D. Install sealants and fittings in accordance with all manufacturer's written instructions.

3.9 LABELING:

- A. Engraved black plastic laminated, with white-core labels, 1/16" thick, shall be permanently

3.10 TESTS:

- A. Notify engineer prior to all testing specified herein at least three business days prior to testing. Engineer shall observe all tests to insure the proper operation of the electrical system.

3.11 PROJECT FINALIZATION AND START-UP:

- A. Upon completion of the work, have each factory representative and/or subcontractor assist in start-up and testing of their respective systems.
- B. Have each representative give personal instructions on operating and maintenance of their equipment to the owner's maintenance and/or operation personnel.
- C. Have representatives certify each system with a written statement indicating that they have performed start-up and final check out of their respective systems.

3.12 FINAL REVIEW:

- A. Have the project foreman accompany their reviewing parties and remove coverplates, panel covers, access panels, etc. as requested, to allow review of the entire electrical system.

END OF SECTION 260001

SECTION 260070 – ELECTRICAL CONNECTIONS FOR EQUIPMENT

PART 1 – GENERAL

1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work of this section.
- B. This section is a Division 26 General Provisions section, and is part of each Division 26, 27, and 28 sections making reference to electrical connections.

1.2 DESCRIPTION OF WORK:

- A. Extent of electrical connections for equipment include all final electrical connections for all equipment having electrical requirements including, but not necessarily limited to the following:
 - 1. Equipment specified under all divisions of the contract. Refer to other divisions for specific electrical requirements.

1.3 QUALITY ASSURANCE:

- A. STANDARDS: Refer to [Section 260001 – Electrical General Provisions](#) as applicable.
- B. SHOP DRAWINGS: Not required.

PART 2 – PRODUCTS

2.1 GENERAL:

- A. Provide all materials for electrical connections including, but not necessarily limited to the following:
 - 1. Raceways
 - 2. Fittings
 - 3. Conductors
 - 4. Cords
 - 5. Cord caps
 - 6. Wiring devices
 - 7. Pressure connectors
 - 8. Lugs (CU-AL)
 - 9. Electrical insulating tape
 - 10. Heat-shrinkable tubing
 - 11. Cable ties
 - 12. Wire nuts
 - 13. Other items and accessories as required.
- B. Crimp on or slip-on type splicing materials designed to be used without wire stripping are not acceptable.

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- C. Power Distribution Blocks: Provide Square D Type LB or Equivalent.
- D. Refer to other Division 26, 27, and 28 Sections for specification of electrical materials as applicable.

PART 3 – EXECUTION

3.1 GENERAL:

- A. Make electrical connections in accordance with manufacturer's written instructions, applicable requirements of NEC, NEMA Standards, and NECA's "Standards of Installation", and in compliance with recognized industry practices to ensure that products fulfill requirements.

3.2 CONNECTIONS:

- A. Permanently Installed Fixed Equipment:
 - 1. Install conductors in flexible conduit from junction box to equipment control panel or connection point.
 - 2. Where such installations are subject to moisture, install in liquid-tight flexible conduit.
- B. Movable equipment:
 - 1. Provide wiring devices, cord caps, and multi-conductor cables as required.
- C. Other methods as required by the NEC and/or as required by special equipment or field conditions.
- D. Power Distribution Blocks: Unless noted otherwise on drawings, provide power distribution blocks only for tapping of feeders and branch circuits. Locate in junction box or gutter in NEMA ratings to suit application.

3.3 MANUFACTURER'S INSTRUCTIONS:

- A. Obtain manufacturer's instruction and wiring diagram regarding electrical connections of each piece of equipment and provide connections in accordance therewith.

3.4 VERIFICATION OF LOAD CHARACTERISTICS:

- A. Verify electrical load characteristics of all equipment prior to rough-in. Review respective shop drawings of all other Divisions and Owner's equipment manuals. Report any variances from electrical characteristics noted in the contract documents to the Architect/Engineer prior to rough-in.
- B. Value of rough-in work, electrical equipment, etc. installed and/or purchased by the contractor not meeting equipment requirements shall be credited back to the owner.

END OF SECTION 260070

SECTION 260072 – ELECTRICAL SUPPORTS AND SEISMIC RESTRAINTS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY:

- A. This Section includes the following:
 - 1. Hangers and supports for electrical equipment and systems.
 - 2. Seismic restraints for electrical equipment and systems.
 - 3. Construction requirements for concrete bases.

1.3 DEFINITIONS:

- A. IBC: International Building Code.
- B. Seismic Restraint: A structural support element such as a metal framing member, a cable, an anchor bolt or stud, a fastening device, or an assembly of these items used to transmit seismic forces from an item of equipment or system to building structure and to limit movement of item during a seismic event.

1.4 SUBMITTALS:

- A. Product Data: Illustrate and indicate style, material, strength, fastening provision, and finish for each type and size of electrical support and seismic-restraint component used.
 - 1. Tabulate types and sizes of seismic restraints, complete with report numbers and rated strength in tension and shear as evaluated by an agency acceptable to authorities having jurisdiction.
 - 2. Annotate to indicate application of each product submitted and compliance with requirements.
- B. Shop Drawings: Indicate materials and dimensions and identify hardware, including attachment and anchorage devices, signed and sealed by a qualified professional engineer. Include the following:
 - 1. Fabricated Supports: Representations of field-fabricated supports not detailed on Drawings.
 - 2. Seismic Restraints: Detail anchorage and bracing not defined by details or charts on Drawings. Include the following:
 - a. Design Analysis: To support selection and arrangement of seismic restraints. Include calculations of combined tensile and shear loads.
 - b. Details: Detail fabrication and arrangement. Detail attachments of restraints to the restrained items and to the structure. Show attachment locations, methods, and spacings. Identify components, list their strengths, and indicate directions and values of forces transmitted to the structure during seismic events.
 - c. Preapproval and Evaluation Documentation: By an agency acceptable to

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authorities having jurisdiction, showing maximum ratings of restraint items and the basis for approval (tests or calculations).

- C. Coordination Drawings: Show coordination of seismic bracing for electrical components with other systems and equipment in the vicinity, including other supports and seismic restraints.
- D. Welding certificates.
- E. Qualification Data: For professional engineer and testing agency.
- F. Field quality-control test reports.

1.5 QUALITY ASSURANCE:

- A. Comply with seismic-restraint requirements in the IBC unless requirements in this Section are more stringent.
- B. Testing of Seismic Anchorage Devices: Comply with testing requirements in Part 3.
- C. Welding: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."

PART 2 – PRODUCTS

2.1 MANUFACTURERS:

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
 - 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers specified.

2.2 SUPPORT, ANCHORAGE, AND ATTACHMENT COMPONENTS:

- A. Rated Strength: Adequate in tension, shear, and pullout force to resist maximum loads calculated or imposed under this Project, with a minimum structural safety factor of five times the applied force.
- B. Steel Slotted Support Systems: Comply with MFMA-3, factory-fabricated components for field assembly.
 - 1. Available Manufacturers:
 - a. Cooper B-Line; a division of Cooper Industries.
 - b. ERICO International Corporation.
 - c. Allied Support Systems; Power-Strut Unit.
 - d. GS Metals Corp.
 - e. Michigan Hanger Co., Inc.; O-Strut Div.
 - f. National Pipe Hanger Corp.
 - g. Thomas & Betts Corporation.
 - h. Unistrut; Tyco International, Ltd.
 - i. Wesanco, Inc.
 - 2. Finishes:

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- a. Metallic Coatings: Hot-dip galvanized after fabrication and applied according to MFMA-3.
- 3. Channel Dimensions: Selected for structural loading and applicable seismic forces.
- C. Raceway and Cable Supports: As described in NECA 1.
- D. Conduit and Cable Support Devices: Steel hangers, clamps, and associated fittings, designed for types and sizes of raceway or cable to be supported.
- E. Support for Conductors in Vertical Conduit: Factory-fabricated assembly consisting of threaded body and insulating wedging plug or plugs for non-armored electrical conductors or cables in riser conduits. Plugs shall have number, size, and shape of conductor gripping pieces as required to suit individual conductors or cables supported. Body shall be malleable iron.
- F. Structural Steel for Fabricated Supports and Restraints: ASTM A 36/A 36M, steel plates, shapes, and bars; black and galvanized.
- G. Mounting, Anchoring, and Attachment Components: Items for fastening electrical items or their supports to building surfaces include the following:
 - 1. Verify suitability of fasteners in subparagraph below for use in lightweight concrete or concrete slabs less than 4 inches (100 mm) thick.
 - 2. Powder-Actuated Fasteners: Threaded-steel stud, for use in hardened portland cement concrete, steel, or wood, with tension, shear, and pullout capacities appropriate for supported loads and building materials where used.
 - a. Available Manufacturers:
 - 1) Hilti, Inc.
 - 2) ITW Construction Products.
 - 3) MKT Fastening, LLC.
 - 4) Simpson Strong-Tie Co. Inc.
 - 3. In the following subparagraph, use stainless steel anchors in corrosive environments.
 - 4. Mechanical-Expansion Anchors: Insert-wedge-type, zinc-coated steel, for use in hardened portland cement concrete with tension, shear, and pullout capacities appropriate for supported loads and building materials in which used.
 - a. Available Manufacturers:
 - 1) Cooper B-Line; a division of Cooper Industries.
 - 2) Empire Tool and Manufacturing Co., Inc
 - 3) Hilti, Inc.
 - 4) ITW Construction Products.
 - 5) MKT Fastening, LLC.
 - 6) Powers Fasteners.
 - 5. Clamps for Attachment to Steel Structural Elements: MSS SP-58, type suitable for attached structural element.
 - 6. Through Bolts: Structural type, hex head, high strength. Comply with ASTM A 325.
 - 7. Toggle Bolts: All-steel springhead type.
 - 8. Hanger Rods: Threaded steel.

2.3 SEISMIC-RESTRAINT COMPONENTS:

- A. Rated Strength, Features, and Application Requirements for Restraint Components: As defined in reports by an agency acceptable to authorities having jurisdiction.
 - 1. Structural Safety Factor: Strength in tension, shear, and pullout force of components used shall be at least five times the maximum seismic forces to which they will be subjected.

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- B. Angle and Channel-Type Brace Assemblies: Steel angles or steel slotted-support-system components; with accessories for attachment to braced component at one end and to building structure at the other end.
- C. Cable Restraints: ASTM A 603, zinc-coated, steel wire rope attached to steel or stainless-steel thimbles, brackets, swivels, and bolts designed for restraining cable service.
 - 1. Available Manufacturers:
 - a. Amber/Booth Company, Inc.
 - b. Loos & Co., Inc.
 - c. Mason Industries, Inc.
 - 2. Seismic Mountings, Anchors, and Attachments: Devices as specified in Part 2 "Support, Anchorage, and Attachment Components" Article, selected to resist seismic forces.
 - 3. Hanger Rod Stiffener: Steel tube or steel slotted-support-system sleeve with internally bolted connections to hanger rod, of design recognized by an agency acceptable to authorities having jurisdiction.
 - 4. Bushings for Floor-Mounted Equipment Anchors: Neoprene units designed for seismically rated rigid equipment mountings, and matched to type and size of anchor bolts and studs used.
 - 5. Bushing Assemblies for Wall-Mounted Equipment Anchorage: Assemblies of neoprene elements and steel sleeves designed for seismically rated rigid equipment mountings, and matched to type and size of attachment devices used.

2.4 FABRICATED METAL EQUIPMENT SUPPORT ASSEMBLIES:

- A. Description: Welded or bolted, structural-steel shapes, shop or field fabricated to fit dimensions of supported equipment.

PART 3 – EXECUTION

3.1 APPLICATION

- A. Comply with NECA 1 for application of hangers and supports for electrical equipment and systems, except if requirements in this Section are stricter.
- B. Maximum Support Spacing and Minimum Hanger Rod Size for Raceway: Space supports for raceways as within 12 inches of coupling, fitting, and box, at each 90 degrees bend, minimum of two supports per ten foot run. Minimum rod size shall be 1/4 inch (6 mm) in diameter.
- C. Multiple Raceways: Install trapeze-type supports fabricated with steel slotted or other support system, sized so capacity can be increased by at least 25 percent in future without exceeding specified design load limits.
 - 1. Secure raceways and cables to these supports with single-bolt conduit clamps, or as otherwise required by an agency acceptable to authorities having jurisdiction.

3.2 SUPPORT AND SEISMIC-RESTRAINT INSTALLATION:

- A. Comply with NECA 1 for installation requirements, except as specified in this Article.
- B. Raceway Support Methods: In addition to methods described in NECA 1, raceways may be supported by openings through structure members, as permitted in NFPA 70.

- C. Install seismic-restraint components using methods approved by the evaluation service providing required submittals for component.
- D. Strength of Support and Seismic-Restraint Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry present and future static and seismic loads within specified loading limits. Minimum static design load used for strength determination shall be weight of supported components plus 200 lb (90 kg).
- E. Mounting and Anchorage of Surface-Mounted Equipment and Components: Anchor and fasten electrical items and their supports to building structural elements by the following methods unless otherwise indicated by code:
 - 1. To Wood: Fasten with lag screws or through bolts.
 - 2. To New Concrete: Bolt to concrete inserts.
 - 3. To Masonry: Approved toggle-type bolts on hollow masonry units and expansion anchor fasteners on solid masonry units.
 - 4. To Existing Concrete: Expansion anchor fasteners.
 - 5. Instead of expansion anchors, powder-actuated driven threaded studs provided with lock washers and nuts may be used in existing standard-weight concrete 4 inches (100 mm) thick or greater. Do not use for anchorage to lightweight-aggregate concrete or for slabs less than 4 inches (100 mm) thick.
 - 6. To Steel: Beam clamps (MSS Type 19, 21, 23, 25, or 27) complying with MSS SP-69 Spring-tension clamps.
 - 7. To Light Steel: Sheet metal screws.
 - 8. Items Mounted on Hollow Walls and Nonstructural Building Surfaces: Mount cabinets, panelboards, disconnect switches, control enclosures, pull and junction boxes, transformers, and other devices on slotted-channel racks attached to substrate by means that meet seismic-restraint strength and anchorage requirements.
- F. Drill holes for expansion anchors in concrete at locations and to depths that avoid reinforcing bars.
- G. Do not drill or core cut holes for anchors or use powder-activated fasteners in post-tension slabs, joists, and beams.

3.3 INSTALLATION OF FABRICATED METAL SUPPORTS:

- A. Comply with installation requirements in [Division 5 Section "Metal Fabrications"](#) for site-fabricated metal supports.
- B. Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor electrical materials and equipment.
- C. Field Welding: Comply with AWS D1.1/D1.1M.

3.4 INSTALLATION OF SEISMIC-RESTRAINT COMPONENTS:

- A. Install bushing assemblies for anchor bolts for floor-mounted equipment, arranged to provide resilient media between anchor bolt and mounting hole in concrete base.
- B. Install bushing assemblies for mounting bolts for wall-mounted equipment, arranged to provide resilient media where equipment or equipment-mounting channels are attached to wall.
- C. Restraint Cables: Provide slack within maximums recommended by manufacturer.

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- D. Attachment to Structure: If specific attachment is not indicated, anchor bracing to structure at flanges of beams, upper truss chords of bar joists, or at concrete members.

3.5 FIELD QUALITY CONTROL:

- A. Testing Agency: Engage a qualified independent testing and inspecting agency to perform field tests and inspections and prepare test reports.
- B. Testing: Test pullout resistance of seismic anchorage devices.
 - 1. Provide evidence of recent calibration of test equipment by a testing agency acceptable to authorities having jurisdiction.
 - 2. Schedule test with Owner, through Architect, before connecting anchorage device to restrained component (unless postconnection testing has been approved), and with at least seven days' advance notice.
 - 3. Obtain Architect's approval before transmitting test loads to structure. Provide temporary load-spreading members.
 - 4. Test at least four of each type and size of installed anchors and fasteners selected by Architect.
 - 5. Test to 90 percent of rated proof load of device.
 - 6. If a device fails test, modify all installations of same type and retest until satisfactory results are achieved.
- C. Record test results.

END OF SECTION 260072

SECTION 260080 – ELECTRICAL DEMOLITION

PART 1 – GENERAL

1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work of this section.
- B. This section is a Division 26 General Provisions section, and is part of each Division 26, 27, and 28 sections making reference to electrical demolition.

1.2 DESCRIPTION OF WORK:

- A. Extent of electrical demolition work is indicated by drawings.
- B. Electrical demolition items are shown to give a basic description of the extent of demolition work, but may not be inclusive.
- C. Do not assume that the electrical drawings reflect as-built conditions. Visit and observe the project prior to submitting bid and determine extent of electrical demolition work.

1.3 QUALITY ASSURANCE:

- A. Standards: Refer to [Section 260001 - Electrical General Provisions](#) as applicable.

PART 2 – PRODUCTS - Not Used.

PART 3 – EXECUTION

3.1 GENERAL:

- A. Demolition work shall be laid out in advance to eliminate unnecessary cutting, drilling, channeling, etc. Where such cutting, drilling, or channeling becomes necessary, perform with care, use skilled mechanics of the trades involved. Cutting work of other contractors shall be done only with the consent of that contractor. Cutting of structural members is not permitted. Repair damage to building and equipment as a result of electrical demolition work under this contract at no additional cost to owner.
- B. Obtain permission from the architect before penetrating any ceiling, floor, and wall surfaces.

3.2 METHODS:

- A. Disconnect and remove any/all fixtures, devices, equipment, etc. required for proper completion of the work whether shown or not.
- B. Relocate, rewire, and/or reconnect any/all fixtures, devices, equipment, etc. that for any reason obstructs construction.

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- C. Maintain circuit integrity and continuity of all existing circuits/feeders, and systems that interfere with or are interrupted by remodel work, unless those circuits/feeders are to be abandoned completely. Maintain all circuits and systems in operation during construction. Provide temporary panels, temporary wiring and conduits, etc. as required.
- D. Leave all existing fixtures, devices, equipment, etc. In portions of the building not being remodeled, in working condition.
- E. Remove and dispose of all raceways, conductors, boxes, devices, equipment, etc., that are not to be reused. Terminate at accessible junction box by providing proper knockout closure, tape conductors, and label as "spare" with circuit no., Zone no., or other characteristic identifying source.
- F. Existing raceways may be reused, if in place, where in compliance with the contract documents and the National Electrical Code. Upgrade and/or provide new conduit supports where necessary for all raceways being reused. Insure integrity of existing raceways before re-use.
- G. Return to owner all light fixtures which are to be removed. Dispose of all light fixtures if so directed by owner in accordance with local environmental laws and policies. Those fixtures indicated for re-use shall be thoroughly cleaned, repaired as required, re-lamped, and installed as indicated. When storing fixtures for reuse, store in area and/or provide protective covering that will keep construction dust and materials off fixtures.
- H. Completely remove all telephone or data cables which are to be removed back to source or as directed by owner.
- I. Disconnect and remove all sound system equipment including speakers, amplifiers, etc. And return to owner. Completely remove and dispose of all associated conduit and wire.

3.3 PATCHING AND REPAIR:

- A. Finished Surfaces: The electrical contractor is responsible for patching and repair of all existing interior surfaces pertaining to the installation of work under this Division, unless specifically noted elsewhere in the contract documents. Where patching and repair is necessary, surfaces shall be finished (painted, etc.) to match the adjacent materials, finished, and colors. Requirements of other Divisions such as [Division 9 - finishes](#) shall apply.
- B. Hard Surfaces: Whenever excavation or trenching is required for the installation of electrical work, it shall be the responsibility of the electrical contractor to make repairs and/or replacements of hard finish surfaces such as concrete, asphalt, etc. Requirements of other Divisions such as [Division 2 – Existing Conditions](#) shall apply.

3.4 CONCEALING:

- A. All raceways shall be concealed within the ceilings, walls, and floors, except in locations where exposed raceways are specifically permitted, such as equipment rooms and unfinished storage areas.
- B. Surface-mounted raceways or systems shall be permitted only where approved by Architect/Engineer.

END OF SECTION 260080

SECTION 260110 – CONDUIT RACEWAYS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work of this section.
- B. This section is a Division 26 General Provisions section, and is part of each Division 26, 27, and 28 sections making reference to conduit raceways.

1.2 DESCRIPTION OF WORK:

- A. Extent of raceways is indicated by drawings and schedules.
- B. Types of raceways in this section include the followings:
 - 1. Rigid Metal Conduit
 - 2. PVC Externally Coated Rigid Steel Conduit
 - 3. Intermediate Metal Conduit
 - 4. Electrical Metallic Tubing
 - 5. Flexible Metal Conduit
 - 6. Liquid-tight Flexible Metal Conduit
 - 7. Rigid Non-metallic Conduit
 - 8. Electrical Non-metallic Tubing

1.3 QUALITY ASSURANCE:

- A. Standards: Refer to [Section 260001 – Electrical General Provisions](#) as applicable. Provide conduit raceway installation in accordance with recommendations of the American Iron and Steel Institute "Design Manual on Steel Electrical Raceways", latest edition.
- B. Manufacturers: Firms regularly engaged in the manufacture of raceway of types and sizes required, whose products have been in satisfactory service for not less than three (3) years.
- C. Shop Drawings: Not required.

PART 2 – PRODUCTS

2.1 CONDUITS:

- A. Rigid Metal Conduit (RMC): Provide zinc-coated, hot-dipped galvanized, rigid metallic conduit in accordance with Federal Specification WW-C-0581 and ANSI C80.1.
- B. PVC Externally Coated Rigid Metal Conduit: Provide hot-dipped galvanized, rigid metallic conduit externally coated with Polyvinyl Chloride (PVC) in accordance with ANSI C80.1 and NEMA Std. Pub. No. RN 1.
- C. Intermediate Metal Conduit (IMC): Provide hot-dipped galvanized, intermediate metal conduit in

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accordance with Federal Specification WW-C-581.

- D. Electric Metallic Tubing (EMT): Provide electric metal tubing in accordance with Federal Specification WW-C-563 and ANSI C80.3.
- E. Flexible Metal Conduit: Provide zinc-coated, flexible metal conduit in accordance with Federal Specification WW-C-566.
- F. Liquid-Tight Flexible Metal Conduit: Provide liquid-tight, flexible metal conduit, constructed of single strip, flexible continuous, interlocked, and double-wrapped steel, galvanized inside and outside, coated with liquid-tight jacket of flexible Polyvinyl Chloride (PVC).
- G. Rigid Non-Metallic Conduit: Provide rigid non-metallic conduit (PVC) in accordance with ANSI/NEMA

2.2 FITTINGS:

- A. Rigid Metal Conduit, Intermediate Metal Conduit, and PVC Externally Coated Rigid Metal Conduit: Provide fully-threaded, malleable steel fittings, rain-tight and concrete-tight as applicable. Provide double locknuts and metal bushings at all conduit terminations. Install OZ Type B bushings on conduits 1-1/4" and larger.
- B. Electric Metallic Tubing: Provide insulated throat, non-indenter, set screw, malleable steel fittings. Screws must have a full set. Provide concrete-tight compression-type fittings in suspended slabs. All EMT fittings shall be fabricated from steel. Die-cast fittings or fittings made from pot metal shall not be allowed. Indenter type fittings are not acceptable. Install OZ Type B bushings on conduits 1" and larger.
- C. Flexible Metal Conduit: Provide flexible metal conduit fittings in accordance with Federal Specification W-F-406, Type 1, Class 1, and Style A. Commercial "greenfield" not less than 1/2" diameter or as otherwise specified on drawings is acceptable.
- D. Liquid-Tight Flexible Metal Conduit: Provide liquid-tight flexible metal conduit fittings in accordance with Federal Specification W-F-406, Type 1, Class 3, Style G.
- E. Non-Metallic Conduit: Provide non-metallic conduit fittings (PVC) in accordance with ANSI/NEMA TC 3 to match conduit types and materials.
- F. Expansion Fittings: OZ Type AX, or equivalent to suit application.
- G. Sealing Bushings: Provide OZ Type FSK, WSK, or CSMI as required by application. Provide OZ Type CSB internal sealing bushings.
- H. Cable Supports: Provide OZ cable supports for vertical risers, type as required by application.

2.3 SIZES:

- A. Provide conduits in sizes as indicated in contract documents or as otherwise specified herein, but not less than 3/4".

PART 3 – EXECUTION

3.1 GENERAL:

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- A. Install raceway and accessories in accordance with manufacturer's written instructions, applicable requirements of NEC, NEMA Standards, and NECA's "Standards of Installation", and in compliance with recognized industry practices to ensure that products fulfill requirements.

3.2 LOCATIONS:

- A. Use RMC for exposed runs where conduit is subject to moisture, weather, or mechanical injury. Use in hazardous locations in
- B. Install RMC on all outdoor locations below 12 ft. and indoor locations subject to motorized and heavy duty carts.
- C. Intermediate Metal Conduit and Fittings: Use for exposed runs where conduit is subject to moisture, weather, or mechanical injury. Use in hazardous locations in accordance with all NEC requirements.
- D. Electric Metal Tubing and Fittings: Use for above-grade feeders, branch circuits, and signal and control circuit, unless specifically noted otherwise on drawings. Install in suspended slabs subject to local code requirements and fire rating considerations.
- E. Flexible Metal Conduit and Fittings: Use as whips for lighting fixtures, fixed equipment where not exposed to weather or moisture, other devices where required by NEC, and as requested by the Engineer. Maximum length not to exceed 6', unless specifically approved by the Electrical Engineer.
- F. Liquid-Tight Flexible Metal Conduit and Fittings: Use for connection to motor terminal boxes, fixed equipment where subject to moisture or weather, and other equipment subject to movement or vibration. Maximum length not to exceed 6', unless specified otherwise.

3.3 METHODS:

- A. Maintain a minimum of 12" clearance between steam or hot water lines or other hot surfaces. Where such clearance is impractical, insulate conduit with approved materials.
- B. Install conduits parallel with or at right angles to lines of the structure. Route conduits symmetrically where possible.
- C. Field bends and offsets shall be made without flattening, kinking, rippling or destroying the smooth internal bore or surface of the conduit and to not less than NEC minimum radius. Conduit that shows signs of rippling or kinking shall not be installed. Conduits installed with wrinkles or kinks or otherwise in an unworkmanlike manner shall be replaced at no additional cost to owner.
- D. Precaution shall be exercised to prevent accumulation of water, dirt or concrete in the conduits during the execution of the project. Conduits in which water or foreign matter has been permitted to accumulate shall be thoroughly cleaned or the conduits runs replaced where such accumulation cannot be removed by methods approved the engineer.
- E. Any conduit which pierces airtight spaces or plenums shall be sealed to prevent air leakage with mastic acceptable to the Architect.

3.4 CONCEALING:

- A. All raceways shall be concealed within the ceilings, walls, and floors, except in locations where exposed raceways are specifically permitted, such as equipment rooms and unfinished storage

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areas. In equipment rooms, if lighting raceways are run exposed, installation shall not be done until piping and duct work layout has been determined in order that lighting boxes may be located so as to avoid being covered by overhead ducts and piping. If lighting raceways in equipment rooms are concealed in the structural ceiling slab, after mechanical work is complete, exposed conduit extensions shall be run to locate lighting fixtures where they are not obscured by work of other trades.

3.5 ELECTRICAL CONTINUITY:

- A. Provide electrically continuous conduit systems throughout.

3.6 FIELD CUTS AND THREADS:

- A. Cut all conduits square. Remove all sharp or rough edges and ream all burrs, inside and outside. Provide clean sharp threads on RMC and IMC.
- B. Engage at least five full threads on all RMC and IMC fittings. Before couplings or fittings are attached, apply one coat of red lead or zinc chromate to male threads of RMC or IMC. Apply coat of red lead, zinc chromate or special compound recommended by manufacture to conduit where conduit protective coating is damaged.

3.7 CONDUIT ENDS:

- A. Cap all spare conduits. Cap or plug conduit ends during construction to prevent entrance of foreign material.

3.8 SPARE CONDUITS:

3.9 HAZARDOUS LOCATIONS:

- A. Install RMC and IMC in all hazardous locations as defined by the NEC. Provide suitable fittings, seal-offs, boxes, etc. to comply with all NEC requirements and/or as shown on the drawings. Provide inspection fittings with hazardous location rated drains to prevent water from accumulating in conduit runs.

3.10 CLEANING:

- A. Pull mandrel and swab through all conduits before installing conductors.

END OF SECTION 260110

SECTION 260120 – CONDUCTORS AND CABLES

PART 1 – GENERAL

1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work of this section.
- B. This section is a Division 26 General Provisions section, and is part of each Division 26, 27, and 28 sections making reference to conductors and cables.

1.2 DESCRIPTION OF WORK:

- A. This section includes building wires and cables and associated connectors, splices, and terminations for wiring systems rated 600 V and less.
- B. Types of conductors and cables in this section include the following:
 - 1. Copper Conductors.
 - 2. Flexible Cords.
- C. Applications for conductors and cables required for project include:
 - 1. Electrical service.

1.3 SUBMITTALS:

- A. Product Data: For each type of conductor and/or cable indicated.
- B. Field Quality-Control Test Reports: From Contractor. Refer to [Section 260001 – General Electrical Provisions](#).

1.4 QUALITY ASSURANCE:

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. Comply with NFPA 70.

PART 2 – PRODUCTS

2.1 GENERAL:

- A. Manufacturers: In other Part 2 articles where subparagraph titles below introduce lists, provide products by the manufacturer specified, subject to compliance with requirements.
- B. Ambient Conditions: Conductors used for branch circuits in areas where the ambient conditions exceed 30 degree C. shall be provided with insulation approved for that temperature.

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- C. Wire Sizes: As indicated on electrical drawings or as specified herein, but in no case less than No. 12 AWG.

2.2 COPPER CONDUCTORS:

- A. Manufacturers:
 - 1. Cerro Wire & Cable Company.
 - 2. General Cable Technologies Corporation.
 - 3. Encore Wire Corporation.
 - 4. Southwire Incorporated.
- B. Refer to Part 3 "Conductor and Cable Applications" Article for application requirements.
- C. References and Ratings:
 - 1. ICEA S-95-658 / NEMA WC70.
 - 2. ASTM.
 - 3. UL Standard 83.
 - 4. UL Standard 1063 (MTW).
 - 5. Federal Specification J-C-30B.
 - 6. NEC.
- D. Conductor Material: Copper.
- E. Stranding: Solid conductor for No. 12 AWG, stranded for No. 10 AWG and larger.
- F. Stranding: Stranded Conductor.
- G. Conductor Insulation Types: Thermoplastic-insulated, Type THHN / THWN-2.

2.3 FLEXIBLE CORDS:

- A. Manufacturers:
 - 1. Cerro Wire & Cable Company.
 - 2. General Cable Technologies Corporation.
 - 3. Encore Wire Corporation.
 - 4. Southwire Incorporated.
- B. Refer to Part 3 "Conductor and Cable Applications" Article for application requirements.
- C. References and Ratings:
 - 1. ASTM.
 - 2. ICEA.
 - 3. UL 62.
 - 4. Pendant or portable.
 - 5. Damp locations.
 - 6. 600 Volts.
 - 7. NEC Article 400.
- D. Conductor Material: Copper.
- E. Stranding: Class K, flexible stranded conductor.

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- F. Conductor Insulation Types: Heat- and moisture-resistant TPE insulation.
- G. Fillers and Wrapping: Non-wicking polypropylene fillers, with tissue-paper separator wrapped around the assembly.
- H. Outer Jacket: Black-colored, heat-, moisture-, and oil-resistant TPE jacket.
- I. Grounding: Insulated green grounding conductor.
- J. Cord Type: SO, hard-usage.

2.4 CONNECTORS AND SPLICES:

- A. Manufacturers:
 - 1. AFC Cable Systems, Inc.
 - 2. AMP Incorporated/Tyco International.
 - 3. Hubbell/Anderson.
 - 4. O-Z/Gedney; EGS Electrical Group LLC.
 - 5. 3M Company; Electrical Products Division.
- B. Description: Factory-fabricated connectors and splices of size, ampacity rating, material, type, and class for application and service indicated.
- C. Splices for wire sizes #10 and smaller shall be screw-on type similar to scotch or ideal wing nut connectors. Crimp-on splices designed to be used without wire stripping are not acceptable.

PART 3 – EXECUTION

3.1 GENERAL:

- A. Install conductors, cables, and accessories as indicated, in compliance with manufacturer's written instruction, applicable requirements of NEC, NECA's "Standards of Installation", and in accordance with recognized industry practices to ensure that products fulfill requirements.

3.2 CONDUCTOR AND CABLE APPLICATIONS:

- A. Branch Circuits:
 - 1. Exposed, including in crawlspaces: Copper conductors in raceway.
 - 2. Concealed in ceilings, walls, and partitions: Copper conductors in raceways.
- B. Portable Appliance Connections: Flexible cord.
- C. Class 1 Control Circuits: Copper conductors in raceway.

3.3 INSTALLATION:

- A. Conceal cables in finished walls, ceilings, and floors, unless otherwise indicated.
- B. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.

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- C. Use pulling means; including fish tape, cable, rope, and basket-weave wire/cable grips that will not damage cables or raceway.
- D. When raceway is not required, install concealed cables parallel and perpendicular to surfaces of structural members, and follow surface contours where possible.
- E. Support cables according to other applicable specification sections.
- F. Seal around cables penetrating fire-rated elements to comply with applicable fire stop specification sections.
- G. Color Coding: Color code secondary service, feeder, and branch circuit conductors. Colors shall remain consistent throughout the project and shall match existing coding system where applicable.
 - 1. Conductor sizes No. 6 AWG and smaller: Colored insulation.
 - 2. Conductors sizes No. 4 AWG and larger: 2 inch (51 mm) band of Colored adhesive marking tape applied at all terminations, junction boxes, and pull boxes.
 - 3. Branch circuit switched-legs and travelers: Colored insulation (in colors other than those indicated below).
 - 4. Color-code 120/208V system conductors:
 - a. Phase A: Black.
 - b. Phase B: Red.
 - c. Phase C: Blue.
 - d. Neutral A: White with Black stripe.
 - e. Neutral B: White with Red stripe.
 - f. Neutral C: White with Blue stripe.
 - g. Neutral (Shared when allowed): White
 - h. Ground: Green.
 - i. Isolated Ground: Green with yellow tracer.
 - 5. Color-code 277/480V system conductors:
 - a. Phase A: Brown.
 - b. Phase B: Orange.
 - c. Phase C: Yellow.
 - d. Neutral A: Gray with Brown stripe.
 - e. Neutral B: Gray with Orange stripe.
 - f. Neutral C: Gray with Yellow stripe.
 - g. Neutral (Shared when allowed): Gray.
 - h. Ground: Green.
 - 6. Color-code 120/240V system conductors:
 - a. Phase A: Black.
 - b. Phase B: Red.
 - c. Neutral A: White with Black Stripe.
 - d. Neutral B: White with Red Stripe.
 - e. Neutral (shared when allowed): Gray.
 - f. Ground: Green.
 - g. Isolated Ground: Green with yellow tracer.

3.4 HOMERUN CIRCUITS:

- A. Homerun circuits may be combined in common conduits at the option of the contractor in compliance with the following:
 - 1. Three-Phase Installations: Not more than three single-phase circuits in one conduit, unless specifically noted otherwise, if each circuit is from a different phase (a, b, or c).
 - 2. Single-Phase Installations: Not more than two single-phase circuits in one conduit,

unless specifically noted otherwise, if each circuit is from a different phase (a or b).

3.5 NEUTRAL CONDUCTORS:

- A. LINE-TO-NEUTRAL BRANCH CIRCUITS: Provide a dedicated neutral for each line-to-neutral branch circuit. Size the neutral conductor the same as the phase conductor. In each outlet or junction box containing multiple neutral conductors, tag each neutral to identify which circuit it serves.

3.6 VOLTAGE DROP:

- A. Provide branch circuit conductors in sizes such that voltage drop for branch circuits do not exceed 3 percent at the farthest outlet. Provide service, feeder, and branch circuit conductors so that the voltage drop on the entire electrical system does not exceed 5 percent at the farthest outlet. This shall be strictly followed regardless of the conductor sizes indicated on the electrical drawings. Increase conductor sizes (and conduits where necessary to comply with NEC conduit fill requirements) as necessary to accommodate this requirement. Calculations shall be based on the following:

1. Lighting Branch Circuits: Connected load plus 25% spare.
2. Appliance and Equipment Branch Circuits: Nameplate or NEC required load.
3. 120V Convenience Outlet Branch Circuits: 12 amps minimum, but in no case less than NEC loading requirements. Use the following schedule:

<u>Distance (feet)</u>	<u>Wire Size (AWG)</u>
0-80	#12
81-125	#10
126-200	#8
201-320	#6

4. Use the NEC method to calculate voltage drop.

3.7 CONNECTIONS:

- A. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.
- B. Make splices and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.
- C. Wiring at Outlets: Install conductor at each outlet, with at least 6 inches (150 mm) of slack. Use pig tails when wiring outlets.

3.8 FIELD QUALITY CONTROL:

- A. Testing: Perform the following field quality-control testing:
 1. Visual and Mechanical Inspection:
 - a. Inspect cables for physical damage and proper connection in accordance with the electrical construction documents.
 - b. Test cable mechanical connections to manufacturer's recommended values with a calibrated torque wrench.
 - c. Check cable color coding for compliance with electrical specifications.

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2. Electrical Tests:
 - a. Perform insulation resistance test on each conductors for feeders 100 amps and greater with respect to ground and adjacent conductors. Applied potential shall be 1000 volts dc for 1 minute.
 - b. Perform continuity test to insure proper cable connection.
 3. Test Values:
 - a. Minimum insulation resistance values shall not be less than two megaohms.
- B. Test Reports: Prepare a written report and submit to the Electrical Engineer at the completion of the project. The report shall include the following:
1. Test procedures used.
 2. Test results that comply with requirements.
 3. Test results that do not comply with requirements and corrective action taken to achieve compliance with requirements.

END OF SECTION 260120

SECTION 260135 – ELECTRICAL BOXES AND FITTINGS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work of this section.
- B. This section is a Division 26 General Provisions section, and is part of each Division 26, 27, and 28 sections making reference to electrical boxes and fittings.

1.2 DESCRIPTION OF WORK:

- A. Extent of electrical boxes and fittings work is indicated by drawings and schedules.
- B. Types of electrical boxes and fittings in this section include the following:
 - 1. Outlet Boxes
 - 2. Junction Boxes
 - 3. Pull Boxes
 - 4. Conduit Bodies
 - 5. Bushings
 - 6. Locknuts
 - 7. Knockout Closures
 - 8. Miscellaneous Boxes and Fittings

1.3 QUALITY ASSURANCE:

- A. Standards: Refer to [Section 260001 – Electrical General Provisions](#) as applicable.
- B. Manufacturers: Firms regularly engaged in the manufacturer of boxes and fittings required, whose products have been in satisfactory service for not less than three years.
- C. Shop Drawings: Submit shop drawings on floor boxes only where required.

PART 2 – PRODUCTS

2.1 INTERIOR OUTLET BOXES:

- A. General: Provide one piece, galvanized or cadmium-plated, flat-rolled, sheet steel interior outlet boxes of types, shapes, and sizes to suit respective location and installation. Construct with stamped knockouts on back and sides and with threaded screw holes. Provide corrosion-resistant screws for securing boxes, covers, and wiring devices. Size all junction boxes in accordance with NEC Table 314.16(A), with a minimum box size of 4" x 4" x 1-1/2". Where three raceway entries are made, provide outlet boxes with a minimum depth of 2-1/8". Where four or more raceway entries are made, provide outlet boxes with a minimum depth of 4-11/16". Gangable boxes shall not be used.
- B. Switch, Telephone, and Receptacle Outlets: Provide outlet boxes not less than 4" square, with

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adapting tile or plaster covers where necessary to set flush with finished surfaces. Where three raceway entries are made, provide outlet boxes with a minimum depth of 2-1/8". Gang boxes shall be used where more than one switch or device is located at one point. Sectional Boxes are not acceptable. In masonry walls where tile or plaster ring cannot be used, install a single-gang 3-1/2" deep box minimum, unless otherwise noted. Where four or more raceway entries are made, provide outlet boxes with a minimum depth of 4-11/16".

2.2 WEATHERPROOF OUTLET BOXES:

- A. Provide corrosion-resistant, cast-metal weatherproof outlet boxes, of types, shapes, and sizes, with threaded conduit ends, cast metal coverplates with spring-hinged waterproof caps, face plate gaskets, and corrosion-resistant fasteners.

2.3 JUNCTION AND PULL BOXES:

- A. Provide code-gauge sheet steel junction and pull boxes, with removable screw-on covers and welded seams, of types, shapes, and sizes to suit each respective location and installation. Size all junction and pull boxes in accordance with NEC 314.28. Provide stainless steel nuts, bolts, screws, and washer.

2.4 CONDUIT BODIES:

- A. Provide galvanized, cast-metal conduit bodies of type, shapes, and sizes to suit respective locations and installation. Construct with threaded conduit entrance ends and removable covers. Provide corrosion-resistant screws.
- B. Aluminum boxes and fitting shall not be permitted.

2.5 CONDUIT CONNECTIONS:

- A. Box connectors 3/4" and larger shall be insulated, throat-type or equal type plastic bushings. Provide double locknuts and insulating plastic bushings for RMC and IMC terminating at panels and boxes.
- B. Where RMC penetrates building, manholes, or vault walls and floors below grade, provide sealing bushings with external membrane clamps as applicable. Provide segmented internal sealing bushings in all raceways penetrating building walls and slabs below grade, and in all above grade raceway penetrations susceptible to moisture migration into building through raceway. Where RMC terminates in manhole, vault, or pull box, provide insulated grounding bushings. Also see [Section 260135 – Electrical Boxes and Fittings](#).
- C. Install OZ type "B" connectors for all conduits 1" and larger.
- D. Provide cable supports in all vertical risers in accordance with NEC 300-19.

2.6 EXPANSION FITTINGS:

- A. Provide expansion joint fittings in all conduit runs crossing structural expansion joints, whether above-grade, in slab-on-grade, or in suspended slabs. Provide OZ type "AX" or approved equivalent, size to the raceway.

2.7 ACCESSORIES:

- A. Provide all accessories including, but not necessarily limited to, bushings, knockout closures, locknuts, offset connectors, etc. of types, shapes, and sizes to suit respective locations and

installation. Construct of corrosion-resistant steel.

PART 3 – EXECUTION

3.1 GENERAL:

- A. Install electrical boxes and fittings in accordance with manufacturer's written instruction, applicable requirements of the NEC, NEMA Standards, and NECA's "Standards of Installation", and in compliance with recognized industry practices to ensure that products fulfill requirements.

3.2 METHODS:

- A. Where outlet boxes are subject to weather or moisture, install weatherproof outlet boxes.
- B. Remove knockouts only for entering conduits. Provide knockout closures to cap unused knockout holes where blanks are mistakenly removed.
- C. Do not use condulets in place of elbows or junction boxes. Condulets in sizes 2" or larger shall not be used, unless specifically approved by the electrical engineer.
- D. Install boxes and conduit bodies in readily accessible locations. Install recessed boxes with faces of boxes or rings flush with finished surfaces. Seal all openings between outlet box and adjacent surfaces with plaster, grout, or similar suitable material.
- E. For stud construction, install boxes with rigid supports using metal bar hangers, or 2" X 4", 1" X 6" wood bridging between studs with screws. Welding or nailing boxes directly to metal joist and studs is not acceptable. Boxes set opposite in common wall shall have at least 10" of conduit between them. Securely fasten outlet boxes to structural surfaces to which attached.
- F. For concrete or masonry construction, solidly embed electrical boxes in concrete and masonry. Provide box supports as required to keep outlet boxes flush with finished surfaces.
- G. Coordinate location of all outlet boxes with millwork, back splashes, tackboards, etc.
- H. Install junction boxes or condulets in conduit runs as required at 100 foot maximum intervals on long runs. This shall apply to concrete junction boxes in grade and junction boxes within the building.
- I. Provide electrical connections for installed boxes.

3.3 IDENTIFICATION:

- A. Mark circuit number on exterior side of junction boxes located in ceilings such that circuits numbers are readily identifiable. For outlet boxes in wall, mark circuit numbers on interior sides of outlet boxes.

END OF SECTION 260135

SECTION 260180 - OVERCURRENT PROTECTIVE DEVICES

PART 1 – GENERAL

1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work of this section.
- B. This section is a Division 26 General Provisions section, and is part of each Division 26, 27, and 28 section making reference to overcurrent protective devices.

1.2 DESCRIPTION OF WORK:

- A. Extent of overcurrent protective devices is indicated by drawings and schedules and is specified herein.
- B. Type of overcurrent protective devices in this section include the following:
 - 1. Molded Case Circuit Breakers

1.3 QUALITY ASSURANCE:

- A. STANDARDS: Refer to [Section 260001 - Electrical General Provisions as applicable](#).
- B. SUBMITTALS:
 - 1. SHOP DRAWINGS: Submit manufacturer's data on overcurrent protective devices including specifications, time-current trip characteristics curves, mounting requirements, installation instructions, etc. Submit dimensioned drawings of overcurrent protective devices.
 - 2. Equipment Room Layouts: Submit dimensioned drawings of all equipment rooms indicating spatial relationships to other proximate equipment. Insure that all code required clearances are maintained.

PART 2 – PRODUCTS

2.1 GENERAL:

- A. Provide overcurrent protective devices and ancillary components of types, sizes, ratings, and electrical characteristics indicated. Provide enclosures in NEMA ratings as indicated and suitable for applications.

2.2 MOLDED CASE CIRCUIT BREAKERS:

- A. MANUFACTURERS: Subject to compliance with all requirements, provide molded case circuit breakers from one of the following:
 - 1. Cutler-Hammer
 - 2. General Electric

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3. Siemens
4. Square D

B. MOLDED CASE CIRCUIT BREAKERS:

1. Provide factory-assembled, molded case circuit breakers as integral components of lighting and appliance panelboards, power panelboards, switchboards, and for individual mounting as indicated. Provide thermal magnetic, molded case circuit breakers of amperages, voltages, types, and short circuit current ratings indicated. Provide bolt-on type breakers only. Construct with quick-break, quick-break mechanism with inverse-time delay and instantaneous trip protection for each pole. Provide breakers rated for ambient temperatures to suit respective applications. Provide mechanical screw type removable copper connector lugs of size to accommodate conductors specified.
2. Provide breakers that have interrupting ratings greater than or equal to the specified fault current. Provide fully-rated systems only. Series-rated systems are not acceptable, unless specifically noted otherwise.

2.3 ELECTRONIC CIRCUIT BREAKERS:

- A. VENDORS: Subject to compliance with all requirements, provide electronic circuit breakers from one of the following:
 1. Cutler-Hammer
 2. General Electric
 3. Siemens
 4. Square D

PART 3 – EXECUTION

3.1 GENERAL:

- A. Install overcurrent protective devices in accordance with manufacturer's written instructions, applicable requirements of NEC, NEMA standards, and NECA's "Standards of Installation", and in compliance with recognized industry practices to ensure that products fulfill requirements.

3.2 IDENTIFICATION:

- A. Mark on interior cover the source of power by indicating the panel and circuit number.

END OF SECTION 260180

SECTION 260452 – GROUNDING

PART 1 – GENERAL

1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work of this section.
- B. This section is a Division 26 General Provisions section, and is part of each Division 26, 27, and 28 sections making reference to grounding.

1.2 DESCRIPTION OF WORK:

- A. Extent of grounding work is indicated by drawings and schedules and is specified herein.
- B. Ground the complete electrical installation including the system neutral, metallic conduits and raceways, boxes, fittings, devices, cabinets, equipment, and separately derived systems in accordance with the NEC and all other applicable codes to provide a permanent, continuous, low impedance, grounding system.

1.3 QUALITY ASSURANCE:

- A. STANDARDS: Refer to [Section 260001 – Electrical General Provisions](#) as applicable.

PART 2 – PRODUCTS

2.1 GENERAL:

- A. Provide grounding equipment and accessories of types, sizes, ratings, and electrical characteristics indicated or as otherwise required to provide a complete system.

2.2 GROUNDING CONDUCTORS:

- A. Unless noted otherwise, provide grounding conductors with stranding and insulation types to match phase conductors. Provide conductors with green insulation if possible; otherwise wrap with green tape. Size ground conductors as indicated on drawings. Do not size ground conductors smaller than that allowable by NEC.

2.3 INSULATED GROUNDING BUSHINGS:

- A. Provide plated malleable iron body with 150 degree Centigrade molded plastic insulating throat, lay-in grounding lug with hardened stainless steel fasteners (OZ Gedney BLG or equivalent).

2.4 CONNECTION TO PIPES:

- A. Provide heavy duty, cast bronze, ground clamp systems with silicon bronze bolts and nuts (OZ Gedney G Series - B or equivalent).

2.5 CONNECTIONS TO STRUCTURAL STEEL, GROUND RODS, OR SPLICES:

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- A. Provide exothermic welds. (Cadweld or equivalent)

2.6 BONDING JUMPERS:

- A. Provide bonding jumpers with hot dip galvanized malleable or ductile iron clamps, hot dip galvanized steel U-bolts, and tinned copper braids (OZ Gedney BJ Series or equivalent).

2.7 GROUND BUS:

- A. Provide 1/4" x 4", copper ground bus complete with insulators and brackets in lengths and at mounting heights as indicated on drawings. Furnish complete with drilled holes and lugs to accommodate grounding conductors.

PART 3 – EXECUTION

3.1 GENERAL:

- A. Install grounding systems in accordance with manufacturer's written instructions, applicable requirements of NEC, NEMA standards, and NECA's "Standards of Installation", and in compliance with recognized industry practices to ensure that products fulfill requirements.

3.2 CLEANING:

- A. Thoroughly clean all metal contact surfaces prior to installation of clamp-on connectors.

3.3 EQUIPMENT BONDING AND GROUNDING:

- A. Provide an NEC sized conductor, whether indicated or not on the drawings, in raceways as follows:
 - 1. Non-metallic conduits and ducts (existing – if any)
 - 2. Device branch circuits.

3.4 ADDITIONAL GROUNDING INSTALLATION REQUIREMENTS:

- A. Provide grounding bushings on all service conduit and conduits installed in concentric/eccentric knock-outs or reducing washer at panelboards, cabinets, and gutters.
- B. Provide bonding jumpers across expansion and deflection couplings in conduit runs.
- C. Provide bonding wire in all flexible conduits.

END OF SECTION 260452

SECTION 270526 - GROUNDING AND BONDING FOR COMMUNICATIONS SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Grounding conductors.
 - 2. Grounding connectors.
 - 3. Grounding busbars.
 - 4. Grounding labeling.

1.3 DEFINITIONS

- A. BCT: Bonding conductor for telecommunications.
- B. EMT: Electrical metallic tubing.
- C. TGB: Telecommunications grounding busbar.
- D. TMGB: Telecommunications main grounding busbar.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: For communications equipment room signal reference grid. Include plans, elevations, sections, details, and attachments to other work.

1.5 INFORMATIONAL SUBMITTALS

- A. As-Built Data: Plans showing as-built locations of grounding and bonding infrastructure, including the following:
 - 1. BCT, TMGB, TGBs, and routing of their bonding conductors.

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1.6 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For grounding to include in operation and maintenance manuals.

1.7 QUALITY ASSURANCE

- A. Installer Qualifications: Cabling Installer must have personnel certified by BICSI on staff.
 - 1. Installation Supervision: Installation shall be under the direct supervision of ITS Technician, who shall be present at all times when Work of this Section is performed at Project site.

PART 2 - PRODUCTS

2.1 SYSTEM COMPONENTS

- A. Comply with J-STD-607-A.

2.2 CONDUCTORS

- A. Comply with UL 486A-486B.
- B. Insulated Conductors: Stranded copper wire, green or green with yellow stripe insulation, insulated for 600 V, and complying with UL 83.
 - 1. Ground wire for custom-length equipment ground jumpers shall be No. 6 AWG, 19-strand, UL-listed, Type THHN wire.
 - 2. Cable Tray Equipment Grounding Wire: **No. 8 AWG.**
- C. Cable Tray Grounding Jumper:
 - 1. Not smaller than No. 6 AWG [**26 kcmils (13.3 sq. mm)**] and not longer than 12 inches (300 mm). If jumper is a wire, it shall have a crimped grounding lug with two holes and long barrel for two crimps. If jumper is a flexible braid, it shall have a one-hole ferrule. Attach with grounding screw or connector provided by cable tray manufacturer.
 - 2. Not smaller than No. 10 AWG [**26 kcmils (13.3 sq. mm)**] and not longer than 12 inches (300 mm). If jumper is a wire, it shall have a crimped grounding lug with one hole and standard barrel for one crimp. If jumper is a flexible braid, it shall have a one- or two-hole ferrule. Attach with grounding screw or connector provided by cable tray manufacturer.
- D. Bare Copper Conductors:
 - 1. Solid Conductors: ASTM B 3.
 - 2. Stranded Conductors: ASTM B 8.
 - 3. Tinned Conductors: ASTM B 33.

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4. Bonding Cable: 28 kcmils (14.2 sq. mm), 14 strands of No. 17 AWG conductor, and 1/4 inch (6.3 mm) in diameter.
5. Bonding Conductor: No. 4 or No. 6 AWG, stranded conductor.
6. Bonding Jumper: Tinned-copper tape, braided conductors terminated with two-hole copper ferrules; 1-5/8 inches (41 mm) wide and 1/16 inch (1.6 mm) thick.

2.3 CONNECTORS

- A. Irreversible connectors listed for the purpose. Listed by an NRTL as complying with NFPA 70 for specific types, sizes, and combinations of conductors and other items connected. Comply with UL 486A-486B.
- B. Compression Wire Connectors: Crimp-and-compress connectors that bond to the conductor when the connector is compressed around the conductor. Comply with UL 467.
 1. Electroplated tinned copper, C and H shaped.
- C. Signal Reference Grid Connectors: Combination of compression wire connectors, access floor grounding clamps, bronze U-bolt grounding clamps, and copper split-bolt connectors, designed for the purpose.
- D. Busbar Connectors: Cast silicon bronze, solderless **compression**-type, mechanical connector; with a long barrel and two holes spaced on 5/8- or 1-inch (15.8- or 25.4-mm) centers for a two-bolt connection to the busbar.
- E. Welded Connectors: Exothermic-welding kits of types recommended by kit manufacturer for materials being joined and installation conditions.

2.4 GROUNDING BUSBARS

- A. TMGB: Predrilled, wall-mounted, rectangular bars of hard-drawn solid copper, **1/4 by 4 inches (6.3 by 100 mm)** in cross section, length as indicated on Drawings. The busbar shall be NRTL listed for use as TMGB and shall comply with J-STD-607-A.
 1. Predrilling shall be with holes for use with lugs specified in this Section.
 2. Mounting Hardware: Stand-off brackets that provide a **4-inch ((100-mm))** clearance to access the rear of the busbar. Brackets and bolts shall be stainless steel.
 3. Stand-off insulators for mounting shall be Lexan or PVC. Comply with UL 891 for use in 600-V switchboards, impulse tested at 5000 V.
- B. TGB: Predrilled rectangular bars of hard-drawn solid copper, **1/4 by 2 inches (6.3 by 50 mm)** in cross section, length as indicated on Drawings. The busbar shall be for wall mounting, shall be NRTL listed as complying with UL 467, and shall comply with J-STD-607-A.
 1. Predrilling shall be with holes for use with lugs specified in this Section.
 2. Mounting Hardware: Stand-off brackets that provide at least a 2-inch ((50-mm)) clearance to access the rear of the busbar. Brackets and bolts shall be stainless steel.)
 3. Stand-off insulators for mounting shall be Lexan or PVC. Comply with UL 891 for use in 600-V switchboards, impulse tested at 5000 V.

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- C. Rack and Cabinet Grounding Busbars: Rectangular bars of hard-drawn solid copper, accepting conductors ranging from No. 14 to No. 2/0 AWG, NRTL listed as complying with UL 467, and complying with J-STD-607-A. Predrilling shall be with holes for use with lugs specified in this Section.
 - 1. Cabinet-Mounted Busbar: Terminal block, with stainless-steel or copper-plated hardware for attachment to the cabinet.
 - 2. Rack-Mounted Horizontal Busbar: Designed for mounting in 19- or 23-inch (483- or 584-mm) equipment racks. Include a copper splice bar for transitioning to an adjoining rack, and stainless-steel or copper-plated hardware for attachment to the rack.
 - 3. Rack-Mounted Vertical Busbar: 72 or 36 inches ((1827 or 914 mm) long, with)stainless-steel or copper-plated hardware for attachment to the rack.

2.5 LABELING

- A. Comply with TIA/EIA-606-A and UL 969 for a system of labeling materials, including label stocks, laminating adhesives, and inks used by label printers.
- B. Adhesive Film Label with Clear Protective Overlay: Machine printed, in black, by thermal transfer or equivalent process. Minimum letter height shall be 3/8 inch (10 mm). Overlay shall provide a weatherproof and UV-resistant seal for label.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine the ac grounding electrode system and equipment grounding for compliance with requirements for maximum ground-resistance level and other conditions affecting performance of grounding and bonding of the electrical system.
- B. Inspect the test results of the ac grounding system measured at the point of BCT connection.
- C. Prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.
- D. Proceed with connection of the BCT only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Bonding shall include the ac utility power service entrance, the communications cable entrance, and the grounding electrode system. The bonding of these elements shall form a loop so that each element is connected to at least two others.
- B. Comply with NECA 1.
- C. Comply with J-STD-607-A.

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3.3 APPLICATION

- A. Conductors: Install solid conductor for **No. 8** AWG and smaller and stranded conductors for **No. 6** AWG and larger unless otherwise indicated.
 - 1. The bonding conductors between the TGB and structural steel of steel-frame buildings shall not be smaller than **No. 6** AWG.
 - 2. The bonding conductors between the TMGB and structural steel of steel-frame buildings shall not be smaller than **No. 6** AWG.
- B. Conductor Terminations and Connections:
 - 1. Pipe and Equipment Grounding Conductor Terminations: Bolted connectors.
 - 2. Underground Connections: Welded connectors except at test wells and as otherwise indicated.
 - 3. Connections to Ground Rods at Test Wells: Bolted connectors.
 - 4. Connections to Structural Steel: Welded connectors.
- C. Conductor Support:
 - 1. Secure grounding and bonding conductors at intervals of not less than 36 inches ((900 mm).)
- D. Grounding and Bonding Conductors:
 - 1. Install in the straightest and shortest route between the origination and termination point, and no longer than required. The bend radius shall not be smaller than eight times the diameter of the conductor. No one bend may exceed 90 degrees.
 - 2. Install without splices.
 - 3. Support at not more than 36-inch (900-mm) intervals.
 - 4. Install grounding and bonding conductors in 3/4-inch (21-mm) PVC conduit until conduit enters a telecommunications room. The grounding and bonding conductor pathway through a plenum shall be in EMT. Conductors shall not be installed in EMT unless otherwise indicated.
 - a. If a grounding and bonding conductor is installed in ferrous metallic conduit, bond the conductor to the conduit using a grounding bushing that complies with requirements in Section 270528 "Pathways for Communications Systems," and bond both ends of the conduit to a TGB.

3.4 GROUNDING BUSBARS

- A. Indicate locations of grounding busbars on Drawings. Install busbars horizontally, on insulated spacers 2 inches (50 mm) minimum from wall, 12 inches (300 mm) above finished floor unless otherwise indicated.
- B. Where indicated on both sides of doorways, route bus up to top of door frame, across top of doorway, and down; connect to horizontal bus.

3.5 CONNECTIONS

- A. Bond metallic equipment in a telecommunications equipment room to the grounding busbar in that room, using equipment grounding conductors not smaller than **No. 6 AWG**.
- B. Stacking of conductors under a single bolt is not permitted when connecting to busbars.
- C. Assemble the wire connector to the conductor, complying with manufacturer's written instructions and as follows:
 - 1. Use crimping tool and the die specific to the connector.
 - 2. Pretwist the conductor.
 - 3. Apply an antioxidant compound to all bolted and compression connections.
- D. Primary Protector: Bond to the TMGB with insulated bonding conductor.
- E. Interconnections: Interconnect all TGBs with the TMGB with the telecommunications backbone conductor. If more than one TMGB is installed, interconnect TMGBs using the grounding equalizer conductor. The telecommunications backbone conductor and grounding equalizer conductor size shall not be less than 2 kcmils/linear foot (1 sq. mm/linear meter) of conductor length, up to a maximum size of No. 3/0 AWG [**168 kcmils (85 sq. mm)**] unless otherwise indicated.
- F. Telecommunications Enclosures and Equipment Racks: Bond metallic components of enclosures to the telecommunications bonding and grounding system. Install [**top-mounted**] [**vertically mounted**] rack grounding busbar unless the enclosure and rack are manufactured with the busbar. Bond the equipment grounding busbar to the TGB No. 2 AWG bonding conductors.
- G. Structural Steel: Where the structural steel of a steel frame building is readily accessible within the room or space, bond each TGB and TMGB to the vertical steel of the building frame.
- H. Electrical Power Panelboards: Where an electrical panelboard for telecommunications equipment is located in the same room or space, bond each TGB to the ground bar of the panelboard.
- I. Shielded Cable: Bond the shield of shielded cable to the TGB in communications rooms and spaces. Comply with TIA/EIA-568-B.1 and TIA/EIA-568-B.2 when grounding screened, balanced, twisted-pair cables.
- J. Rack- and Cabinet-Mounted Equipment: Bond powered equipment chassis to the cabinet or rack grounding bar. Power connection shall comply with NFPA 70; the equipment grounding conductor in the power cord of cord- and plug-connected equipment shall be considered as a supplement to bonding requirements in this Section.
- K. Access Floors: Bond all metal parts of access floors to the TGB.
- L. Equipment Room Signal Reference Grid: Provide a low-impedance path between telecommunications cabinets, equipment racks, and the reference grid, using **No. 6 AWG** bonding conductors.

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1. Install the conductors in grid pattern on 4-foot (1200-mm) centers, allowing bonding of one pedestal from each access floor tile.
2. Bond the TGB of the equipment room to the reference grid at two or more locations.
3. Bond all conduits and piping entering the equipment room to the TGB at the perimeter of the room.

M. Towers and Antennas:

1. Ground Ring: Buried at least 30 inches (760 mm) below grade and at least 24 inches (610 mm) from the base of the tower or mounting.
2. Bond each tower base and metallic frame of a dish to the ground ring, buried at least 18 inches (460 mm) below grade.
3. Bond the ground ring and antenna grounds to the equipment room TMGB or TGB, buried at least 30 inches (760 mm) below grade.
4. Bond metallic fences within 6 feet (1.8 m) of towers and antennas to the ground ring, buried at least 18 inches (460 mm) below grade.
5. Special Requirements for Roof-Mounted Towers:
 - a. Roof Ring: Meet requirements for the ground ring except the conductors shall comply with requirements in Section 264113 "Lightning Protection for Structures."
 - b. Bond tower base footings steel, the TGB in the equipment room, and antenna support guys to the roof ring.
 - c. Connect roof ring to the perimeter conductors of the lightning protection system.
6. Waveguides and Coaxial Cable:
 - a. Bond cable shields at the point of entry into the building to the TGB and to the cable entrance plate, using No. 2 AWG bonding conductors.
 - b. Bond coaxial cable surge arrester to the ground or roof ring using bonding conductor size recommended by surge-arrester manufacturer.

3.6 IDENTIFICATION

A. Labels shall be preprinted or computer-printed type.

1. Label TMGB(s) with "fs-TMGB," where "fs" is the telecommunications space identifier for the space containing the TMGB.
2. Label TGB(s) with "fs-TGB," where "fs" is the telecommunications space identifier for the space containing the TGB.
3. Label the BCT and each telecommunications backbone conductor at its attachment point: "WARNING! TELECOMMUNICATIONS BONDING CONDUCTOR. DO NOT REMOVE OR DISCONNECT!"

3.7 FIELD QUALITY CONTROL

A. Perform tests and inspections.

B. Tests and Inspections:

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1. Inspect physical and mechanical condition. Verify tightness of accessible, bolted, electrical connections with a calibrated torque wrench according to manufacturer's written instructions.
2. Test the bonding connections of the system using an ac earth ground-resistance tester, taking two-point bonding measurements in each telecommunications equipment room containing a TMGB and a TGB and using the process recommended by BICSI TDMM. Conduct tests with the facility in operation.
 - a. Measure the resistance between the busbar and the nearest available grounding electrode. The maximum acceptable value of this bonding resistance is 100 milliohms.
3. Test for ground loop currents using a digital clamp-on ammeter, with a full-scale of not more than 10 A, displaying current in increments of 0.01 A at an accuracy of plus/minus 2.0 percent.
 - a. With the grounding infrastructure completed and the communications system electronics operating, measure the current in every conductor connected to the TMGB[**and in each TGB**]. Maximum acceptable ac current level is 1 A.
- C. Excessive Ground Resistance: If resistance to ground at the BCT exceeds [5] <Insert value> ohms, notify Architect promptly and include recommendations to reduce ground resistance.
- D. Grounding system will be considered defective if it does not pass tests and inspections.
- E. Prepare test and inspection reports.

END OF SECTION 000000

SECTION 275116 - PUBLIC ADDRESS SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. The objective of this project is to completely upgrade four Intercom systems in the Oquirrh building, one intercom system in the Wasatch D-Block building and one intercom system in the Wasatch B-Block building. The scope of the project is as follows:

1. Replace all existing speakers; add new speakers as needed.
2. Reuse all cell call buttons.
3. Replace public address systems cables.
4. Replace control panels in the control rooms
5. Replace security electronic panels related to call indicators, door release & lock buttons and LEDs only if public address system devices are integrated into security electronic panels and complete panel replacement is required.
6. Replace call relays, power supplies, and local wires related to the control panels.
7. Provide new intercom equipment cabinet and equipment.

- B. Section Includes:

1. Supply and install a turnkey public address system, to include all equipment and materials, whether specifically mentioned herein or not, to ensure a complete and operating system.
2. Generate all submittal information for the complete fabrication, installation and wiring of the system. Provide the on-site installation and wiring, and provide on-going supervision and coordination during implementation.
3. Provide for the initial adjustment of the systems as herein prescribed and provide all test equipment for the system checkout and acceptance tests. Two weeks prior to the systems acceptance tests, submit an initial testing and tuning report to be reviewed by the Consultant showing methods and results for tests performed.
4. Provide on-the-job training in the operation and maintenance of the systems for personnel designated by the Owner.
5. Provide one year warranty for all systems installed, as specified.
6. Assist the consultant in performing acceptance tests.
7. Correct problems found during acceptance tests.

1.3 DEFINITIONS

- A. Channels: Separate parallel signal paths, from sources to loudspeakers or loudspeaker zones, with separate amplification and switching that permit selection between paths for speaker alternative program signals.

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- B. Zone: Separate group of loudspeakers and associated supply wiring that may be arranged for selective switching between different channels.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: Power, signal, and control wiring.
 - 1. Include plans, elevations, sections, and attachment details.
 - 2. Include details of equipment assemblies. Indicate dimensions, weights, required clearances, method of field assembly, components, and location and size of each field connection.
 - 3. Console layouts.
 - 4. Control panels.
 - 5. Rack arrangements.
 - 6. Wiring Diagrams: For power, signal, and control wiring.
 - a. Identify terminals to facilitate installation, operation, and maintenance.
 - b. Single-line diagram showing interconnection of components.
 - c. Cabling diagram showing cable routing.
- C. Delegated-Design Submittal: For supports and seismic restraints for control consoles, equipment cabinets and racks, and components indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
 - 1. Detail fabrication and assembly of supports and seismic restraints for control consoles, equipment cabinets and racks, and components.

1.5 INFORMATIONAL SUBMITTALS

- A. Seismic Qualification Certificates: For control consoles, equipment cabinets and racks, accessories, and components, from manufacturer.
 - 1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation. Include qualification data for testing agency.
 - 2. Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity and locate and describe mounting and anchorage provisions.
 - 3. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.
- B. Field quality-control reports.

1.6 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For public address systems to include in emergency, operation, and maintenance manuals.
 - a. Operating instructions laminated and mounted adjacent to operating console location.

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1.7 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

See notes on drawings.

1.8 QUALITY ASSURANCE

- A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of units required for this Project, and

1. is licensed to perform work of this type in the project jurisdiction, and
2. has at least five (5) years of verifiable direct experience with the devices, equipment and systems of the type and scope specified herein, and
3. has a minimum of one full-time NICET certified Level II audio systems technician or one full-time NSCA Certified Electronic Systems Technician (C-EST), or one Infocomm CTS-I (Certified Technology Specialist - Installation) systems technician
4. is a local company with a permanent office/warehouse located within 75 miles of the jobsite.

- B. The following system contractors are preapproved to bid:

1. Cache Valley Electric (435)-752-6405
2. Professional Systems Technology (801)-649-6696

- C. Alternate system contractor will be considered if submitted in accordance with system contractor qualifications to the A/E office within 8 business days prior to the bid opening day. Submit years of similar experience, descriptions of sample projects, and resumes of qualified staff, along with location of office for consideration. Approved alternate vendors and integrators will be listed in written addenda.

- D. Specification Information Requests: Direct any requests for clarification, substitution, or changes in these specifications or drawings to the AV consultant.

1.9 WARRANTY

- A. Warranty the entire system for a minimum of one year from the date of system acceptance by the Owner. Component warranties shall be honored for the term established by the manufacturer, if greater than one year.

- B. Activate all manufacturers' equipment warranties in Owner's name to commence on the date of acceptance. In the case of installer modified equipment, the manufacturer's warranty is

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normally voided. In such cases, provide the Owner with a warranty equivalent to that of the original manufacturer.

- C. Replace defective materials and repair faulty workmanship within 72 hours of discovery at no cost to the Owner during the period of the warranty.
- D. If, during the warranty period, any component is out of service for more than one week due to unavailability of parts or service, supply and install an identical new component. If an identical component is not available, substitute equivalent equipment, but only with approval of the Owner.
- E. The contractor shall warrant the equipment to be new and free from defects in material and workmanship, and will, within one year from date of installation, repair or replace any equipment found to be defective at no cost to owner except in case of obvious abuse.
- F. Owner furnished equipment is not required to be warranted.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Specified on the project drawings.
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- C. Comply with NFPA 70.

2.2 FUNCTIONAL DESCRIPTION OF SYSTEM

Program the paging system to function as follows:

- A. Level 1 Paging:
 - 1. Push and hold the *LEVEL 1* button on the control panel on the first level and the system shall:
 - a. Turn on the LEDs for the same buttons on all control panels;
 - b. Route panel 1 microphone to level 1 speakers;
 - c. Un-mute level 1 speakers;
 - d. Send a one second long pre-announcement tone to level 1 speakers;
 - 2. Release the *LEVEL 1* button after making an announcement and the system shall:
 - a. Mute level 1 speakers;
 - b. Turn off LEDs for all level 1 buttons on all three levels;
- B. Level 2 paging, level 3 paging, outside paging, and all other paging:
Refer to the programming for level 1 paging above.
- C. Level 1 Day Room Paging:
 - 1. Push and hold Day Room button on the control panel on the first level and the system shall:

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- a. Turn on the LED for the same button on the control panel;
 - b. Route panel 1 microphone to Level 1 Day Room speakers;
 - c. Un-mute level 1 Day Room speakers;
 - d. Send a one second long pre-announcement tone to level 1 Day Room speakers;
- 2. Release the *Day Room* button after making an announcement, the system shall:
 - a. Mute level 1 Day Room speakers;
 - b. Turn off LEDs for the level 1 Day Room buttons;
- D. Level 2 Day Room paging, level 3 Day Room paging:
Refer to the programming for level 1 Day Room paging above.
- E. Level 1 Monitoring:
 - 1. Push down *Monitor* button to turn on the monitoring system to listen and the system shall:
 - a. Turn on Level 1 Monitor button LED;
 - b. Route Level 1 Dayroom microphone to Level 1 panel speaker;
 - c. Unmute Level 1 Dayroom microphone;
 - 2. Push the *Monitor* button one more time to turn off the monitoring system and the system shall:
 - a. Turn off Level 1 Monitor button LED;
 - b. Mute Level 1 Dayroom microphone;
- F. Level 2 and Level 3 Monitoring:
Refer to the programming for Level 1 monitoring above.
- G. Lamp Test Button on Level 1 panel:
 - 1. Push Lamp Test button on level 1 panel and the system shall:
 - a. Turn on all LEDs on the panel;
 - 2. Release the Lamp Test button and the system shall:
 - a. Turn off all LEDs on the same panel;
- H. Key Switches:
 - 1. Rotate panel 1 Key Switch to left or right and the system shall:
 - a. Turn on power supplies (including existing ones) to the panel.
 - 2. Rotate panel 1 Key Switch to the other side and the system shall:
 - a. Turn off power supplies (including existing ones) to the panel.
- I. Lamp Test button and Key Switch on other panels:
Refer to the programming for level 1 Lamp Test buttons and Key Switches above.
- J. Modify the program as requested by the owners' representatives or by the AV consultant.

2.3 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Design supports and seismic restraints for control consoles, equipment cabinets and racks, and components, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.
- B. Seismic Performance: Supports and seismic restraints for control consoles, equipment cabinets and racks, and components shall withstand the effects of earthquake motions determined according to **ASCE/SEI 7**.

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2.4 PATHWAYS

- A. Conduit and Boxes: Comply with Section 260110 "Conduit Raceways."

PART 3 - EXECUTION

3.1 WIRING METHODS

- A. Wiring Method: Install cables in pathways and cable trays except within consoles, cabinets, desks, and counters. Conceal pathway and cables except in unfinished spaces.
 - 1. Comply with requirements for pathways and boxes specified in Section 270528 "Pathways for Communications Systems."
- B. Wiring within Enclosures: Bundle, lace, and train cables to terminal points with no excess and without exceeding manufacturer's limitations on bending radii. Provide and use lacing bars and distribution spools.

3.2 INSTALLATION OF PATHWAYS

- A. Comply with requirements in Section 260110 "Conduit Raceways." for installation of conduits and wire ways.
- B. Install manufactured conduit sweeps and long-radius elbows whenever possible.

3.3 INSTALLATION OF CABLES

- A. Comply with NECA 1.
- B. General Cable Installation Requirements:
 - 1. Terminate conductors; no cable shall contain unterminated elements. Make terminations only at outlets and terminals.
 - 2. Splices, Taps, and Terminations: Arrange on numbered terminal strips in junction, pull, and outlet boxes; terminal cabinets; and equipment enclosures. Cables may not be spliced.
 - 3. Secure and support cables at intervals not exceeding 30 inches (760 mm) and not more than 6 inches (150 mm) from cabinets, boxes, fittings, outlets, racks, frames, and terminals.
 - 4. Bundle, lace, and train conductors to terminal points without exceeding manufacturer's limitations on bending radii. Install lacing bars and distribution spools.
 - 5. Do not install bruised, kinked, scored, deformed, or abraded cable. Do not splice cable between termination, tap, or junction points. Remove and discard cable if damaged during installation and replace it with new cable.
 - 6. Cold-Weather Installation: Bring cable to room temperature before dereeling. Heat lamps shall not be used.
- C. Separation of Wires: Separate speaker-microphone, line-level, speaker-level, and power wiring runs. Install in separate pathways or, where exposed or in same enclosure, separate conductors at least 12 inches (300 mm) apart for speaker microphones and adjacent parallel power and telephone wiring. Separate other communication equipment conductors as recommended by equipment manufacturer.

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3.4 INSTALLATION

- A. Match input and output impedances and signal levels at signal interfaces. Provide matching networks where required.
- B. Identification of Conductors and Cables: Color-code conductors and apply wire and cable marking tape to designate wires and cables so they identify media in coordination with system wiring diagrams.
- C. Equipment Cabinet:
 - 1. Install vent panels at top and bottom of equipment cabinets and between components where possible for maximum ventilation. Locate amplifiers at top of cabinet. Locate digital signal processors below amplifiers, separated by several vent panels.
 - 1. Securely fasten in place equipment that is not rack mounted, including relays and other small components. Do not use sticky-back tape.
 - 2. Connect powered components to 120 VAC outlets on voltage suppressor power bars. Do not connect to outlets on other components.
 - 3. Identification:
 - a. Legibly identify user-operated system controls and system input / output jacks using engraved, permanently attached laminated plastic plates or imprinted Lexan labels. Label equipment and controls within equipment cabinets using similar labels or printed labels from a label maker or laser printer.
 - b. Affix label to rack panel inside cabinet listing name and telephone number of installer. Appropriate warranty instructions may be included
 - 4. Fill all unused rack space with blank or vent panels.
 - 5. Provide manufacture recommended power supplies for all specified equipment.
- D. Volume Limiter/Compressor: Program each zone with a volume limiter/compressor. Install in central equipment cabinet. Arrange to provide a constant input to power amplifiers.
- E. Conductor Sizing: Unless otherwise indicated, size speaker circuit conductors from racks to loudspeaker outlets not smaller than No. 18 AWG and conductors from microphone receptacles to amplifiers not smaller than No. 22 AWG.
- F. Weatherproof Equipment: For units that are mounted outdoors, in damp locations, or where exposed to weather, install consistent with requirements of weatherproof rating.

3.5 GROUNDING

- A. Ground cable shields and equipment to eliminate shock hazard and to minimize ground loops, common-mode returns, noise pickup, cross talk, and other impairments.
- B. Signal Ground Terminal: Locate at main equipment cabinet. Isolate from power system and equipment grounding.
- C. Install grounding electrodes as specified in Section 270526 "Grounding and Bonding for Communications Systems."

3.6 FIELD QUALITY CONTROL

- A. Tests and Inspections:

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1. Power Output Test: Measure electrical power output of each power amplifier at normal gain settings of 50, 1000, and 12,000 Hz. Maximum variation in power output at these frequencies must not exceed plus or minus 1 dB.
 2. Signal Ground Test: Measure and report ground resistance at public address equipment signal ground. Comply with testing requirements specified in Section 270526 "Grounding and Bonding for Communications Systems."
- B. Inspection: Verify that units and controls are properly labeled and interconnecting wires and terminals are identified. Prepare a list of final tap settings of paging speaker-line matching transformers.
- C. Public address system will be considered defective if it does not pass tests and inspections.
- D. Prepare test and inspection reports.
1. Include a record of final speaker-line matching transformer-tap settings and signal ground-resistance measurement certified by Installer..

3.7 ADJUSTING

- A. On-Site Assistance: Engage a factory-authorized service representative to provide on-site assistance in adjusting sound levels, resetting transformer taps, and adjusting controls to meet occupancy conditions.
- B. Occupancy Adjustments: When requested within [12] months of date of Substantial Completion, provide on-site assistance in adjusting system to suit actual occupied conditions. Provide up to [two] visits to Project during other-than-normal occupancy hours for this purpose.

3.8 OWNER TRAINING

- A. Provide on-the-job training by a suitable qualified instructor, to designated personnel, to instruct them in the operation and maintenance of the systems.
1. Arrange with the equipment manufacturer for such instruction, at no additional cost, in the event qualified instructors are not available on staff.
 2. System shall be fully tested and adjusted prior to training.
 3. Prepare a written agenda for training at least one week prior to the meeting. Send to consultants for approval.
 4. Provide a minimum of two (2) hours (minimum) training on the operation and maintenance of the audio/visual presentation system, at job site. Demonstrate the functioning equipment at the training session.
 5. Provide all training at no cost to the Owner, including transportation, lodging, meals and training manuals.

3.9 SYSTEM ACCEPTANCE TESTS

- A. System acceptance tests shall not be performed until the initial system checkout has been completed. The system acceptance tests shall be supervised by the Consultant and shall consist of the following:
- B. Take a physical inventory of all equipment on site and compare to equipment lists in the

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contract documents.

- 3.10 Demonstrate the operation of all system equipment.
- 3.11 Both subjective and objective tests will be required by the Consultant to determine compliance with the specifications. Provide test equipment specified by the Consultant for these tests.
- 3.12 Provide all final, "as-built" drawings, manuals, and other required documents.

In the event that the systems are not completely installed or further adjustment is required, or defective equipment must be repaired or replaced, tests may be suspended or continued at the option of the Consultant. The Consultant's return trip shall be paid for by the installer prior to the Consultants return.

- 3.13 If the need for further adjustments becomes evident during the demonstration and testing, continue work until the installation operates properly. Included in the continued work shall include, but not be limited to, changes to or installation of resistive pads, readjustment of loudspeaker aiming, adjustment of system equalizers, programming changes to the control system, if in the judgment of the Consultant, these adjustments are required.
- 3.14 If acceptance of the system is delayed because of defective equipment or because the equipment does not fulfill this specification, reimburse the Consultant for all time and expenses of the Consultant for these tests during any extensions of the acceptance-testing period.
- 3.15 CLEANUP AND REPAIR
 - A. Upon completion of the work, remove all refuse and rubbish from and about the premises daily, and shall leave the relevant areas and equipment clean and in an operational state. Repair any damage caused to the premises by the installation activities, at no cost to the Owner.

3.16 PROTECTION OF WORK

During the installation, and up to the date of final acceptance, protect finished and unfinished work against damage and loss. In the event of such damage or loss, replace or repair such work at no cost to the Owner.

END OF SECTION 275116

SECTION 275123 - INTERCOMMUNICATIONS AND PROGRAM SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. The scope of this project is to completely upgrade four Intercom systems in Unit A, B, C, and D of the Oquirrh building, which includes:
 - 1. Replace call stations around the building.
 - 2. Replace all existing speakers; add new speakers as needed.
 - 3. Reuse all existing cell call buttons.
 - 4. Replace intercom cables.
 - 5. Replace intercom control panels in the control rooms.
 - 6. Replace security electronic panels related to call indicators, door release & lock buttons, and LEDs only if intercom devices are integrated into security electronic panels and complete panel replacement is required.
 - 7. Replace call relays, power supplies, and local wires related to the control panels.
 - 8. Replace the existing intercom equipment cabinets and equipment.
- B. Section Includes:
 - 1. Supply and install a turnkey intercom systems, to include all equipment and materials, whether specifically mentioned herein or not, to ensure a complete and operating system.
 - 2. Generate all submittal information for the complete fabrication, installation and wiring of the system. Provide the on-site installation and wiring, and provide on-going supervision and coordination during implementation.
 - 3. Provide for the initial adjustment of the systems as herein prescribed and provide all test equipment for the system checkout and acceptance tests. Two weeks prior to the systems acceptance tests, submit an initial testing and tuning report to be reviewed by the Consultant showing methods and results for tests performed.
 - 4. Provide on-the-job training in the operation and maintenance of the systems for personnel designated by the Owner.
 - 5. Provide one year warranty for all systems installed, as specified.
 - 6. Assist the consultant in performing acceptance tests.
 - 7. Correct problems found during acceptance tests.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: For intercommunications and program systems. Include plans, elevations, sections, details, and attachments to other work.
 - 1. Detail equipment assemblies and indicate dimensions, weights, required clearances, method of field assembly, components, and location and size of each field connection.
 - 2. Include scaled drawings for master station that detail built-in equipment.
 - 3. Wiring Diagrams: For power, signal, and control wiring.
 - a. Identify terminals to facilitate installation, operation, and maintenance.
 - b. Single-line diagram showing interconnection of components.
 - c. Cabling diagram showing cable routing.

1.4 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For intercommunications and program systems to include in operation and maintenance manuals.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of units required for this Project. and
 - 1. is licensed to perform work of this type in the project jurisdiction, and
 - 2. has at least five (5) years of verifiable direct experience with the devices, equipment and systems of the type and scope specified herein, and
 - 3. has a minimum of one full-time NICET certified Level II audio systems technician or one full-time NSCA Certified Electronic Systems Technician (C-EST), or one Infocomm CTS-I (Certified Technology Specialist - Installation) systems technician
 - 4. is a local company with a permanent office/warehouse located within 75 miles of the jobsite.
- B. The following system contractors are preapproved to bid:
 - 1. Cache Valley Electric (435)-752-6405
 - 2. Professional Systems Technology (801)-649-6696
- C. Alternate system contractor will be considered if submitted in accordance with system contractor qualifications to the A/E office within 8 business days prior to the bid opening day. Submit years of similar experience, descriptions of sample projects, and resumes of qualified staff, along with location of office for consideration. Approved alternate vendors and

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integrators will be listed in written addenda.

- D. Specification Information Requests: Direct any requests for clarification, substitution, or changes in these specifications or drawings to the AV consultant.

1.6 WARRANTY

- A. Warranty the entire system for a minimum of one year from the date of system acceptance by the Owner. Component warranties shall be honored for the term established by the manufacturer, if greater than one year.
- B. Activate all manufacturers' equipment warranties in Owner's name to commence on the date of acceptance. In the case of installer modified equipment, the manufacturer's warranty is normally voided. In such cases, provide the Owner with a warranty equivalent to that of the original manufacturer.
- C. Replace defective materials and repair faulty workmanship within 72 hours of discovery at no cost to the Owner during the period of the warranty.
- D. If, during the warranty period, any component is out of service for more than one week due to unavailability of parts or service, supply and install an identical new component. If an identical component is not available, substitute equivalent equipment, but only with approval of the Owner.
- E. The contractor shall warrant the equipment to be new and free from defects in material and workmanship, and will, within one year from date of installation, repair or replace any equipment found to be defective at no cost to owner except in case of obvious abuse.
- F. Owner furnished equipment is not required to be warranted.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Specified in the project drawings.

2.2 FUNCTIONAL DESCRIPTION OF MANUALLY SWITCHED SYSTEMS

- A. Control Room intercom system
The system allows two way communications between the Control Room and Sallyport.
Program the system to function as follows:
 - 1. Push Control Room Intercom rocker switch and the system shall:

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- a. Turn on the system;
- b. Turn on listening mode;
- c. Turn on the rocker switch LED;
- d. Un-mute two Sallyport microphones;
- e. Route the Sallyport microphones to the control room speaker;
2. Push and hold *Push To Talk* button:
 - a. Mute two Sallyport microphones;
 - b. Un-mute the control room microphone;
 - c. Route the control room microphone to the Sallyport speakers;
3. Release the *Push To Talk* button:
 - a. Mute the control room microphone;
 - b. Un-mute Sallyport microphones;
 - c. Turn on listening mode;
4. Push *Control Room Intercom* rocker switch to the other side and the system shall:
 - a. Turn off the system;
 - b. Turn off the rocker switch LED;

B. Panel 1 function controls:

Program the system to function as follows:

1. Section 1 of Panel 1:
 - a. Push down the Dayroom button and the system shall:
 - Turn on the listening mode;
 - Turn on Dayroom button LED;
 - b. Push the *Push To Talk* button and the system shall:
 - Turn off the listening mode;
 - Route the panel microphone to Dayroom speakers;
 - Un-mute the panel microphone;
 - c. Release *Push To Talk* button and the system shall:
 - Mute the panel microphone;
 - Turn on the listening mode;
 - d. Push *Dayroom* button again and the system shall:
 - Turn off the Dayroom button LED;
 - Shut off the system;
2. Section 2 of Panel 1:
 - a. Push Sallyport Call Button, the system shall:
 - Send a call tone to the panel speaker;
 - b. Push Dayroom door *Call Button* and the system shall:
 - Route the Dayroom door speaker to the intercom amplifier;
 - Send a call tone to the panel speaker;
 - Set Dayroom door Intercom button LED to flashing mode;
 - c. Push down the *intercom* button and the system shall:
 - Set the LED to solid on mode;
 - Turn on the listening model;
 - d. Push and hold down, or release the Push To *Talk* button, and the system shall:

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- Allow officers to speak to the caller or to listen to the caller;
- e. Push the *intercom* button again and the system shall:
 - Shut off the system;
 - Turn off the Intercom LED button;
- f. Rotate the rotary switch to left and the system shall:
 - Close the door;
 - Turn on the green LED;
 - Turn off the red LED;
- g. Rotate the rotary switch to right, the system shall:
 - Open the door;
 - Turn off the green LED;
 - Turn on the red LED;
- 3. Section 3 of Panel 1:
 - a. Rotate the key switch to one side and the system shall:
 - Turn on the panel power;
 - Turn on the power LED;
 - b. Rotate the key switch to the other side and the system shall:
 - Turn off the panel power;
 - Turn off the power LED;
 - c. Push and Release Lamp Test button and the system shall:
 - Turn on and off Panel LEDs;

C. Panel 2A and Panel 3 function controls

Refer to the programming for panel 1 above.

1. Panel 2B function controls
Program the system to function as follows:
2. Section 1 of panel 2B:
 - a. Dayroom button:
Refer to the programming for Section 1 of panel 1 above.
 - b. Service Door Button:
Refer to the programming for Section 2 of panel 1 above.
3. Section 2 and 3 of panel 2B:
 - a. Front Door Intercom button:
Refer to the programming for Section 2 of panel 1 above.
 - b. Sallyport *Intercom* Button:
Refer to the programming for Section 2 of panel 1 above.

- D. Modify the program as requested by the owners' representatives or by the AV consultant.

2.3 RACEWAYS

- A. Intercommunication and Program System Raceways and Boxes: Comply with requirements in Section 260110 "Conduit Raceways."

PART 3 - EXECUTION

3.1 WIRING METHODS

- A. Wiring Method: Install cables in raceways and cable trays except within consoles, cabinets, desks, and counters. Conceal raceway and cables except in unfinished spaces.
 - 1. Comply with requirements for raceways and boxes specified in Section 260110 "Conduit Raceways."
- B. Wiring within Enclosures: Bundle, lace, and train cables to terminal points with no excess and without exceeding manufacturer's limitations on bending radii. Provide and use lacing bars and distribution spools.

3.2 INSTALLATION OF RACEWAYS

- A. Comply with requirements in Section 260110 "Conduit Raceways" for installation of conduits and wire ways.
- B. Install manufactured conduit sweeps and long-radius elbows whenever possible.

3.3 INSTALLATION OF CABLES

- A. Comply with NECA 1.
- B. General Requirements:
 - 1. Terminate conductors; no cable shall contain unterminated elements. Make terminations only at outlets and terminals.
 - 2. Splices, Taps, and Terminations: Arrange on numbered terminal strips in junction, pull, and outlet boxes; terminal cabinets; and equipment enclosures. Cables may not be spliced.
 - 3. Secure and support cables at intervals not exceeding 30 inches (760 mm) and not more than 6 inches (150 mm) from cabinets, boxes, fittings, outlets, racks, frames, and terminals.
 - 4. Bundle, lace, and train conductors to terminal points without exceeding manufacturer's limitations on bending radii. Install lacing bars and distribution spools.
 - 5. Do not install bruised, kinked, scored, deformed, or abraded cable. Do not splice cable between termination, tap, or junction points. Remove and discard cable if damaged during installation and replace it with new cable.
 - 6. Cold-Weather Installation: Bring cable to room temperature before dereeling. Heat lamps shall not be used.
- C. Separation of Wires: Separate speaker-microphone, line-level, speaker-level, and power wiring runs. Install in separate raceways or, where exposed or in same enclosure, separate conductors at least 12 inches (300 mm) apart for speaker microphones and adjacent parallel power and telephone wiring. Separate other intercommunication equipment conductors as recommended by equipment manufacturer.

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3.4 INSTALLATION

- A. Match input and output impedances and signal levels at signal interfaces. Provide matching networks where required.
- B. Identification of Conductors and Cables: Color-code conductors and apply wire and cable marking tape to designate wires and cables so they identify media in coordination with system wiring diagrams.
- C. Weatherproof Equipment: For units that are mounted outdoors, in damp locations, or where exposed to weather, install consistent with requirements of weatherproof rating.
- D. Speaker-Line Matching Transformer Connections: Make initial connections using tap settings indicated on Drawings.
- E. Equipment Cabinet:
 - 1. Install vent panels at top and bottom of equipment cabinets and between components where possible for maximum ventilation. Locate amplifiers at top of cabinet. Locate digital signal processors below amplifiers, separated by several vent panels.
 - 1. Securely fasten in place equipment that is not rack mounted, including relays and other small components. Do not use sticky-back tape.
 - 2. Connect powered components to 120 VAC outlets on voltage suppressor power bars. Do not connect to outlets on other components.
 - 3. Identification:
 - a. Legibly identify user-operated system controls and system input / output jacks using engraved, permanently attached laminated plastic plates or imprinted Lexan labels. Label equipment and controls within equipment cabinets using similar labels or printed labels from a label maker or laser printer.
 - b. Affix label to rack panel inside cabinet listing name and telephone number of installer. Appropriate warranty instructions may be included
 - 4. Fill all unused rack space with blank or vent panels.
 - 5. Provide manufacture recommended power supplies for all specified equipment.

3.5 GROUNDING

- A. Ground cable shields and equipment to eliminate shock hazard and to minimize ground loops, common-mode returns, noise pickup, cross talk, and other impairments.
- B. Signal Ground Terminal: Locate at main equipment cabinet. Isolate from power system and equipment grounding.
- C. Install grounding electrodes as specified in Section 270526 "Grounding and Bonding for Communications Systems."

3.6 SYSTEM PROGRAMMING

- A. Programming: Fully brief Owner on available programming options. Record Owner's decisions and set up initial system program. Prepare a written record of decisions, implementation methodology, and final results.

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3.7 FIELD QUALITY CONTROL

1. Power Output Test: Measure electrical power output of each paging amplifier at normal gain settings of 150, 1000, and 2500 Hz. Maximum variation in power output at these frequencies is plus or minus 3 dB.
 2. Signal Ground Test: Measure and report ground resistance at system signal ground. Comply with testing requirements in Section 270526 "Grounding and Bonding for Communications Systems."
- A. Inspection: Verify that units and controls are properly labeled and interconnecting wires and terminals are identified. Prepare a list of final tap settings of paging speaker-line matching transformers.
- B. Intercommunications and program systems will be considered defective if they do not pass tests and inspections.
- C. Prepare test and inspection reports.

3.8 ADJUSTING

- A. On-Site Assistance: Engage a factory-authorized service representative to provide on-site assistance in adjusting sound levels, resetting transformer taps, and adjusting controls to meet occupancy conditions.
- B. Occupancy Adjustments: When requested within **12** months of date of Substantial Completion, provide on-site assistance in adjusting system to suit actual occupied conditions. Provide up to **two** visits to Project during other-than-normal occupancy hours for this purpose.

3.9 OWNER TRAINING

- G. Provide on-the-job training by a suitable qualified instructor, to designated personnel, to instruct them in the operation and maintenance of the systems.
1. Arrange with the equipment manufacturer for such instruction, at no additional cost, in the event qualified instructors are not available on staff.
 2. System shall be fully tested and adjusted prior to training.
 3. Prepare a written agenda for training at least one week prior to the meeting. Send to consultants for approval.
 4. Provide a minimum of two (2) hours (minimum) training on the operation and maintenance of the audio/visual presentation system, at job site. Demonstrate the functioning equipment at the training session.
 5. Provide programming and software training as required to allow the owners to do any programming that the supplier is allowed to do during commissioning, testing, service and field additions or deletions to the system.
 6. Provide all training at no cost to the Owner, including transportation, lodging, meals and training manuals.

3.10 SYSTEM ACCEPTANCE TESTS

- A. System acceptance tests shall not be performed until the initial system checkout has been completed. The system acceptance tests shall be supervised by the Consultant and shall

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consist of the following:

- B. Take a physical inventory of all equipment on site and compare to equipment lists in the contract documents.
 - 1. Demonstrate the operation of all system equipment.
 - 2. Both subjective and objective tests will be required by the Consultant to determine compliance with the specifications. Provide test equipment specified by the Consultant for these tests.
 - 3. Provide all final, "as-built" drawings, manuals, video (DVD format) and other required documents.
- C. In the event that the systems are not completely installed or further adjustment is required, or defective equipment must be repaired or replaced, tests may be suspended or continued at the option of the Consultant. The Consultant's return trip shall be paid for by the installer prior to the Consultants return.
 - 1. If the need for further adjustments becomes evident during the demonstration and testing, continue work until the installation operates properly. Included in the continued work shall include, but not be limited to, changes to or installation of resistive pads, readjustment of loudspeaker aiming, adjustment of system equalizers, programming changes to the control system, if in the judgment of the Consultant, these adjustments are required.
 - 2. If acceptance of the system is delayed because of defective equipment or because the equipment does not fulfill this specification, reimburse the Consultant for all time and expenses of the Consultant for these tests during any extensions of the acceptance-testing period.

3.11 CLEANUP AND REPAIR

- A. Upon completion of the work, remove all refuse and rubbish from and about the premises daily, and shall leave the relevant areas and equipment clean and in an operational state. Repair any damage caused to the premises by the installation activities, at no cost to the Owner.

3.12 PROTECTION OF WORK

- B. During the installation, and up to the date of final acceptance, protect finished and unfinished work against damage and loss. In the event of such damage or loss, replace or repair such work at no cost to the Owner.

END OF SECTION 275123

USP Background Check Form

The following information is needed to perform a Criminal Background check. All Items must be filled in unless it doesn't apply to them. (n/a)

Project #:

Full Name:

Date of Birth:

Social Security #: XXX-XX- Last 4 digits only unless requested

Driver's License #:

State Issued:

ID# : (if applies)

Vehicles that will be brought into secured areas to work from will need to be put on the clearance.

Vehicle Make:

Model:

Plate #:

This information is to be **FAXED ONLY** to the Attn: **Shawn Anderson**

Fax # - **801-545-5702**.

*NOTE- Mobile Phones and computer laptops etc. are not allowed inside the secured area.

If you have question about your background check please contact-

Project Coordinator: **Shawn Anderson**

Phone#: **801-244-9201**

Updated 5-22-2014

Utah Department of Corrections (DRAPER SITE)

OUTSIDE CONTRACTOR RULES AND REGULATIONS

1. All contractors, sub-contractors, workers, architects, etc. must have picture identification on their person while working at the Prison. A Utah Driver's License or Driver's License Division I. D. is preferred, but we will accept pictured military I. D., etc.
2. All contractors, sub-contractors, workers, architects, etc. must have reached at least 18 years of age before they will be allowed to work on Utah Department of Corrections property.
3. No unlocked vehicles may be left unattended.
4. No running vehicles may be left unattended.
5. No keys may be left in vehicles.
6. Park all vehicles and equipment away from fences - a minimum of 50 feet.
7. No solid white work clothes may be worn.
8. Do not run - especially toward or away from any fence line.
9. Absolutely No "visiting" with inmates.
10. Nothing may be given to inmates. Giving contraband to inmates is a felony!

11. Nothing may be taken from inmates.
12. No tools may be left unattended. Unattended tools will be confiscated.
13. Do not throw away broken or worn out saw blades of any kind at the prison site. Dispose of them off property, at your home, shop, or office, or you may give them to the security officer.
14. Explosive cartridges for Hilti guns, etc. must be locked up and/or strictly supervised at all times. Cartridge "clips" shall be disposed of away from prison property. This also includes individual load shell casings. If you have a Hilti gun, etc. in your equipment, the gate security officer for your construction site must be notified.
15. No weapons, ammunition, explosives, drugs, alcoholic beverages, poisons, acids or other dangerous objects or hazardous substances are allowed on prison property. Tobacco in any form is not allowed inside the secure fences. Contractors who need to smoke will be required to go outside the secure fences to smoke. Required prescription "medicines" can be carried in limited daily dosages only. These items will be confiscated if found and appropriate action will be taken.
16. Anyone entering prison property is subject to search of his property, person, and vehicle. Failure to submit to this search will result in expulsion from prison property and/or arrest upon probable cause.
17. Any statutory or illegal contraband or other controlled items, as stipulated by this document, found on a person in a work area or in a vehicle will be confiscated. Vehicles may also be confiscated. Any item violating state law will result in an investigation and/or arrest by the prison Security personnel or local law enforcement agency. If any statutory or illegal contraband or other controlled items are brought to the prison a second time, access to prison property will be denied permanently.

18. Any person who the officer believes is arriving at the prison impaired by alcohol or drugs shall be denied access to prison property and may also be detained pending arrival of an Enforcement Officer who will determine if a citation or arrest is warranted.
19. When working inside the prison fence lines, all traffic is checked, searched, and cleared at our main truck gate sally ports. In order to help us expedite your traffic, all trips through the gates should be limited to those which are absolutely necessary. 'Car pooling' in company vehicles from the main prison parking areas into the construction site is required. When checking in through the prison gates, all workers in any and all vehicles must get out of the vehicle and stand next to it while it is searched and their identity is verified.
20. Private vehicles used primarily for transportation will not be allowed into construction sites. "Company" and/or primary "work" vehicles will be permitted.
21. Foot traffic into construction sites is encouraged when practical.
22. Driver's licenses or other picture I.D. of all workers will be taken at the gates to the construction sites for I.D. and control purposes. A temporary pass from that gate will be issued to be worn in plain sight while working on site. Upon departure from the work site, this temporary pass will be returned to the gate that issued the pass and personal Driver License or other Id will be returned upon exit.
23. In the event of a prison emergency, i.e., fire, escape, riot, etc., all construction sites will be secured and traffic to and from the sites halted. Work within the sites will be allowed to continue normally as long as there is no physical threat to the site(s). When the emergency has been verified and resolved, the site will be re-opened to traffic. If evacuation of a site is necessary, everyone will be expected to gather in one central location identified by the security officer, and then will be escorted off property

by security personnel. All emergency situations will be resolved as soon as possible.

24. Work hours for construction within the prison fences will normally be limited strictly to daylight hours, Monday through Friday. If early morning, late evening, weekend, or holiday work is planned or needed, the project security staff must be contacted at least 72 hours in advance of approval.
25. Ex-inmates or parolees are normally not permitted to work on prison projects.

NOTE: Specific limitations may be listed as part of your project specifications. Report any known or suspected ex-inmates, parolees, or convicted felons to Jerry Jensen/ Facilities Bureau at the Utah State Department of Corrections 557-1223

All contractors, subcontractors, employees, and other personnel working on prison projects are subject to having a criminal identification check process. Anyone with a verified record of criminal activity, deemed to pose a potential hazard to prison security, may be denied access to prison property.

26. Ladders may not be left unsecured in construction areas at night or on weekends, holidays, etc. when no work is going on.
 - A. Portable ladders must be removed from the work site and secured inside locked construction trailers or be secured outside of the fenced perimeter at the end of every workday.
 - B. Larger, heavier ladders and scaffolding may, with approval by internal security, be secured by chains and padlocks to immovable objects within the construction area, but safely away from all fences.

NOTE: Ladders which are not secured as per the above instructions will be confiscated.

27. Cutting torches and equipment shall not be left unattended in construction areas. All cutting torches, fuel tanks, etc. must be maintained on carts or vehicles and be removed from construction sites at the end of each work day.,
28. Contractors will not be permitted to store flammable liquids or fuel tanks within the security fence perimeter. Contractors will be assigned a specific approved storage area for any such items on request.
29. No vehicles or motorized construction equipment may be left inside the security fence perimeter when no construction work going on unless mechanically disabled and proper authorization is obtained in writing from UDC security.
30. Contractors are responsible to provide their own portable restrooms for construction sites. Contractors will not be allowed access to occupied prison facilities to utilize restrooms unless restrooms are located in the immediate work area.
31. Contractors will not be given access to the prison dining room for meals unless construction work is in the specific kitchen/dining room area and the Warden's and Support Services approval is granted in advance.
32. All contractors will be required to clean up all construction sites, debris and "extra" construction supplies from work areas on a daily basis. Construction debris must be hauled away immediately or placed in a designated disposal site at the prison. Extra construction supplies must be returned to the designated supply/construction yard or retained in construction vehicles until the next workday.

33. Contractors working at the Draper site on authorized bid projects are responsible to provide all of their own tools and equipment for the work involved in those projects. The prison will normally not permit contractor use of state-owned shops, tools, or equipment.
34. All contractors working at the Draper site are required to fully comply with all OSHA work safety requirements; take prudent precautions to protect the work site and adjacent facilities from damage; and to provide appropriate safety equipment, including fire extinguisher and other "fire protection devices" for their work areas.
35. All contractors working at the Draper site are required to take reasonable precautions to avoid causing damage to the existing facility and its utility lines, etc. in the course of completing their authorized project. Special attention shall be given to utility lines that may be buried, or imbedded in walls, under floors, etc. The Draper maintenance staff will provide the best available information on what lines are known or suspected in any given area. The contractors are responsible to use due care to eliminate and/or minimize damages. When and if damage occurs, the contractors are required to cooperate fully with prison maintenance or other emergency personnel to assist with and expedite any repairs required to restore normal prison services and operations. Negligence or carelessness on the part of any contractor that results in all or part of any damage will result in that contractor being held liable for all or part of the damages. In all cases, the extent of any such liability will be negotiated with the primary or general contractor responsible for the project. In accepting the award of any project at the Utah State Prison, Draper site, the contractor also agrees to negotiate any such damages in good faith with prison representatives.
36. All planned interruptions to utilities (Water, sewer, gas, electrical, steam etc.) Will require a written request to:

Jerry Jensen / Facilities Director

14717 So. Minuteman Dr.

Draper, Utah. 84020

This request can also be faxed to (801) 545-5702 attn: Jerry

Please allow least five working days prior to the scheduled outage or interruption. If an emergency occurs and the utility service needs to be interrupted to facilitate repairs or to prevent risk to life or property it is expected that all efforts be made to promptly respond and correct the problem, and notification to facility maintenance be done so emergency response can be in-acted to maintain order and proper operation of the institution.

If you have any questions regarding these regulations or need a special exemption, clarifications, etc., contact Jerry Jensen (801) 557-1223 or email jerryjensen@utah.gov

NOTE: These rules are subject to review and change at any time.

CONT_RULES AND REGULATIONS.DOC

Question and Answers for Bid #DA14027 - Corrections-Intercom & Paging System Remodel Draper Prison-13304100

OVERALL BID QUESTIONS

There are no questions associated with this bid. If you would like to submit a question, please click on the "Create New Question" button below.

Question Deadline: Jun 18, 2014 4:00:00 PM MDT